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OF THE

ENGLISH LANGUAGE

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GEORGE EDWIN RINES

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THIRTY VOLUMES

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No. 1

SCHEME OF SOUND SYMBOLS

FOR THE PRONUNCIATION OF WORDS.

Note.—(-) is the mark dividing words respelt phonetically into syllables; (′), the accent indicating on which syllable or syllables the accent or stress of the voice is to be placed.

Sound-symbols employed in Respelling.	Representing the Sounds as exemplified in the Words.	Words respelt with Sound-symbols and Marks for Pronunciation.
ā	mate, fate, fail, aye	*māt, fāt, fāl, ā.*
ă	mat, fat	*măt, făt.*
â	far, calm, father	*fâr, kâm, fâ′ther.*
ä	care, fair	*cär, fär.*
aw	fall, laud, law	*fawl, lawd, law.*
ē	mete, meat, feet, free	*mēt, mēt, fēt, frē.*
ĕ	met, bed	*mĕt, bĕd.*
ė	her, stir, heard, cur	*hėr. stėr, hėrd, kėr.*
ī	pine, ply, height	*pīn, plī, hīt.*
ĭ	pin, nymph, ability	*pĭn, nĭmf, ă-bĭl′ĭ-tĭ.*
ō	note, toll, soul	*nōt, tōl, sōl.*
ŏ	not, plot	*nŏt, plŏt.*
ô	move, smooth	*môv, smôth.*
ö	Goethe (similar to *e* in her)	*gö′tĕh.*
ow	noun, bough, cow	*nown, bow, kow.*
oy	boy, boil	*boy, boyl.*
ū	pure, dew, few	*pūr, dū, fū.*
ŭ	bud, come, tough	*bŭd, kŭm, tŭf.*
û	full, push, good	*fûl, pûsh, gûd.*
ü	French plume, Scotch guid	*plüm, güd.*
ch	chair, match	*chär, măch.*
ċh	German buch, Heidelberg, Scotch loch (guttural)	*bôċh, hī′dėl-bĕrċh, lŏċh.*
g	game, go, gun	*gām, gō, gŭn.*
j	judge, gem, gin	*jŭj, jĕm, jĭn.*
k	king, cat, cot, cut	*kĭng, kăt, kŏt, kŭt.*
s	sit, scene, cell, city, cypress	*sĭt, sēn, sĕl, sĭt′ĭ, sī′prĕs.*
sh	shun, ambition	*shŭn, ăm-bĭsh′ŭn.*
th	thing, breath	*thĭng, brĕth.*
th	though, breathe	*thō, brēth.*
z	zeal, maze muse	*zēl, māz, mūz.*
zh	azure, vision	*ăzh′ėr, vĭzh′ŭn.*

UNITED EDITORS' ENCYCLOPEDIA AND DICTIONARY.

CLONES, *klōnz:* market town of Ireland, county of Monagham, 12 m. w. from the town of Monagham. It is on rising ground on the high-road between Monagham and Belturbet, and near the Ulster canal; is in general well built, and has some ancient remains, including the ruins of a monastery, dating, it is said, from the 5th c., and of a round tower. It has manufactures of linen, corn-mills, and a brewery, and is the seat of a poor-law union. Pop. about 3,000.

CLONIC, a. *klŏn'ĭk* [Gr. *klŏnos,* a violent confused motion]: in *med.,* applied to spasms or convulsions, rapidly alternating with relaxation.

CLONMEL, *klon-mĕl'* (Vale of Honey): municipal borough in Tipperary county, Ireland, with a little in Waterford: on both banks of the Suir, and two islands; 14 m. s.s.e. of Cashel. It stands chiefly on the Tipperary side of the Suir, and on one of the isles in the river. Three stone bridges cross the Suir and connect the parts of the town; it has good streets, well paved and well lighted. The chief edifices now in the town are an Episcopal church, two Roman Catholic churches, a Franciscan abbey, the court-house, jail, barracks, free library, town-hall, convents, schools, lunatic asylum, etc. The trade is chiefly in grain, cattle and provisions; and there are flour-mills, creameries, a brewery, etc. Clonmel had formerly walls, of which one gate remains. In 1650 Cromwell besieged the town, and demolished the castle. Clonmel was the birthplace of Sterne and Lady Blessington, and was the chief scene of O'Brien's attempted rising 1848.

CLONTARF, *klon-târf:* town of Ireland, county of Dublin, about three m. e.n.e. of Dublin city. It is frequented during the summer months for sea-bathing, and there are many handsome villas in the vicinity. Clontarf is noted as the place where, 1014, Brian Boroimhe (q.v.) won a great victory over the Danes. Pop. 5,200.

CLOOTS, *klōts,* Jean Baptiste, Baron (better known as Anacharsis Cloots): perhaps the most singular of all the enthusiasts brought to the surface of society by the French Revolution: 1755–1794, Mar. 23; b. near Cleves. From his 11th year he was educated in Paris. Through ardent

study of the ancients his imagination, naturally extravagant, became so heated with the political constitutions of Greece, that he undertook the mission of spreading the democracy of Sparta and Athens throughout the world; and with this view he travelled through most of the countries of Europe, under the name of Anacharsis, everywhere expending upon his philanthropic schemes large sums of his considerable private fortune. The union of all nations in one family was the ultimate aim of all his cosmopolitan schemes. The breaking out of the French Revolution brought his enthusiasm to a head, as he saw in it the fulfilment of his dreams and plans. He returned to Paris, constituted himself the 'orator or advocate of the human race,' and presented numerous petitions to the national assembly. 1790, June 19, he appeared at the bar of the assembly at the head of a number of strangers dressed in the costumes of different nations, as the representatives of the whole earth, and presented an address of thanks for the stand made against the tyrants of the world and a request that all the strangers then in Paris should be made French citizens. As a member of the constituent assembly he offered to raise a Prussian corps, to be called the Vandal Legion; proposed to lay a price on the head of the Duke of Brunswick; called the king of Prussia the Sardanapalus of the north; and eulogized Count Ankarstrom for having assassinated the king of Sweden. These extravagances were received often with storms of applause. He called for the apotheosis of Guttenberg in the Pantheon, as the 'creator of the word,' and also for that of an apostate priest. On the occasion of the general armament of France he deposited 12,000 francs on the altar of the country. In 1792, he was elected a member of the convention, and continued to weary the house with his extravagant motions. He hated Christianity no less than royalty; declared himself the enemy of its founder; and, as an adherent of the worship of reason, preached downright materialism. At the trial of Louis XVI. he gave his vote for death, 'in the name of the human race,' and took occasion at the same time to pass sentence on the king of Prussia. Some time afterward, on the motion of Robespierre, he was excluded from the club of the Jacobins, on the ground that he was wealthy and a nobleman. Robespierre hated and feared the enthusiast, and when St. Just brought his impeachment against Hebert and his adherents Cloots was involved in it, was condemned to death, and the sentence was executed 1794, March 23. He heard his sentence with the greatest composure, comforted the companions of his fate, and continued to preach materialism to his friend Hebert on the way to the place of execution. At the foot of the scaffold he requested that his turn might be last, in order that he might have time to establish a few more principles, while the heads of the others were falling. He then laid his head with equanimity on the block, after asserting his innocence, and protesting

against his sentence 'in the name of the human race.' He left a number of writings, all of the same extravagant character; among them *Certitude des Preuves du Mohammédisme* (Lond. 1780), *L'Orateur du Genre Humain* (1791), and *Base Constitutionnelle de la Republique du Genre Humain* (1793).

CLOQUET, *klo-kā'*, Jules Germain: 1790, Dec. 18—1883; b. Paris: surgeon. He became prof. of clinical surgery in the Faculty of Paris 1831, member of the Acad. of Sciences 1855, commander of the Legion of Honor 1860, and a baron 1867. He invented many surgical instruments, devised new methods of operating, and improved the art of modelling in wax; the anatomical museum in Paris preserves many of his preparations. His dissertations won several prizes; he wrote on hernia, calculi, diseases of the urinary organs, the preparation of skeletons, the lachrymal apparatus in serpents, and the anatomy of intestinal worms. His chief work, on human anatomy, 3 vols. folio, appeared 1821–31. He also published *Souvenirs de la vie privée du Général Lafayette.* His elder brother, Hippolyte Cloquet (1787–1840), also was an eminent anatomist.

CLOSE, a. *klōs* [F. *clos*, closed, shut, an inclosed field—from L. *clausus*, shut up: Gael. *clobhsa*, an inclosure, an entry]: shut up; having no vent or outlet; confined; compact; solid or dense; concise; brief; very near; private; narrow; crafty; penurious; warm; oppressive, as the weather; in *bot.*, pressed together; not spreading; N. in *Scot.*, a narrow passage; a blind alley; a courtyard; an inclosure, as about a cathedral: Ad. closely; nearly; secretly. Closely, ad. *klōs'lĭ*, with no space intervening; nearly; attentively; secretly; in detail; minutely. Close-bodied, fitting the body closely. Close corporation, a body that fills its own vacancies—usually used in an abusive sense. Close-fisted, or Close-handed, niggardly; penurious. Close-harbor, one formed by encircling a portion of water with walls and quays, except at the entrance, or by excavating the land adjacent to the sea or river, and then letting in the water. Close-hauled, or Close to the wind, mode in which the sails are arranged, in order to make the ship move in a direction the nearest possible toward that point of the compass from which the wind blows. Fore-and-aft vessels, especially cutters, sail closer to the wind than square-rigged ones. Close-pack, the ice-floes so jammed together that the passing of a vessel through them becomes impossible. Close-quarters, in direct contact; hand to hand. Close stool, a night stool; a commode. Close-season, a fixed period during which certain operations or powers to do are legally stopped, as to fish for salmon, or to shoot certain birds. Closeness, n. *klōs'nĕs*, narrowness; want of ventilation; compactness; secrecy. *Note.*—Close, in its original meaning, was simply 'a small, narrow, or limited space,' as, 'He only rented a small *close*, enough to keep one cow'—that is, an *inclosed*

field; in *Scot.*, *room* indicated a still smaller space, as on tombstones in some burial-grounds are such inscriptions—'2 rooms,' '4 rooms,' a *room* meaning a space sufficient for an adult grave.—SYN. of 'close, a.': tight; confined; secluded; secret; retired; stagnant; oppressive; secretive; cautious; wary; reticent; taciturn; attentive; parsimonious; niggardly; penurious; covetous; dense; solid; compact; adjoining; near; intimate; familiar; confidential; undeviating; strict; accurate; careful; precise; earnest; faithful; doubtful.

CLOSE, v. *klōz* [see above]: to shut up; to make fast; to end or finish; to cover; to inclose; to come or bring together; to unite; to engage in battle hand to hand: N. conclusion; end; a pause; cessation; the time of ending, finishing, or shutting up. CLO'SING, imp. CLOSED pp. *klōzd.* CLO'SER, n. *-zėr*, one who or that which. CLOSURE, n. *klō'zhûr*, the act of shutting up; that by which a thing is shut; the parts inclosed; in *OE.*, the end or conclusion. TO CLOSE WITH, to accede or agree to; to grapple with.—SYN. of 'close, n.': conclusion; termination; cessation; stop; end; ending; extreme; extremity;—of 'close, v.': to finish; shut; complete; terminate; end.

CLOSE, *klōs*, in Heraldry: when the wings of a bird are down and close to the body; term used only with reference to birds addicted to flight, such as the eagle and the falcon. Of dunghill cocks, and other domestic fowls, it is understood that their wings are usually in this position. Barnacles, and bits for horses, are said to be *close* when they are not extended.

CLOSET, n. *klŏz'ĕt* [dim. of *close*, an inclosure]: a small room or apartment for retirement; a small, dark room: V. to shut up; to conceal; to take into a private apartment for consultation. CLOS'ETING, imp. CLOS'ETED, pp.

CLOS'ET, in Heraldry: the half of the bar (q.v.).

CLOSURE, or CLÔTURE: device for closing debate in parliamentary assemblies, the use of which is analogous to that of the previous question in American deliberative bodies. In the French chamber of deputies the president is to take the sense of the chamber before pronouncing the closing of debate. If the *clôture* is opposed, only a single speech against it is allowed. The *clôture* being once pronounced no further debate is in order, with the single exception of remarks upon the state of the question. In the English parliament the previous question does not have, as in America, the effect of suppressing all further discussion of the main question. When means for this purpose were first devised, the name closure or *clôture* was adopted from the French. After the obstructive tactics pursued by the Irish members in the sessions of 1881 and 1882, standing orders were adopted in the latter year which provided that the speaker of the house of commons, or chairman of the committee of ways and means (a committee of the whole), might stop debate at his discretion, if supported by more

than 200 members, or if opposed by less than 40 and supported by more than 100. In 1888, Feb., it was provided that closure should take place when there were 100 members voting in the majority in favor of it.

CLOT, n. *klŏt* [Sw. *klots*, a log; *klot*, a bowl: Dut. *kloot*, a lump; allied to CLOD, which see]: fluid matter thickened or coagulated into a lump or lumps—*clod* is applied to earth: V. to turn into masses or lumps; to coagulate or thicken, as milk or blood. CLOT'TING, imp. CLOT'TED, pp.: ADJ. converted into clots; reddened as with clotted blood. CLOT'TY, a. *-tĭ*, full of clots. CLOTTED CREAM: see under CLOUT.

CLOTAIRE I. and II.: Kings of the Franks: see MEROVINGIANS.

CLOTH, n. *klŏth* [AS. *clath*, cloth: Ger *kleid:* Icel. *klœdi*, a garment: W. *clyd*, warm: Gael. *cloimh*, wool]: any woven stuff; any fabric woven from wool; the covering of a table. CLOTHS, plu. *klŏths*, meaning different kinds. CLOTHE, v. *klōth*, to cover with articles of dress; to put on raiment; to invest; to surround; to spread over or to cover. CLO'THING, imp.: N. garments in general; dress. CLOTHED, or CLAD, pp. *klōthd*, *klăd*. CLOTHES, n. plu. *klōthz*, garments or dress for the body. BED-CLOTHES, coverings of a bed. CLOTHES-BASKET. CLOTHES-BRUSH. CLOTHIER, n. *klōth'yėr*, a seller of cloths; a seller or maker of clothes; an outfitter. THE CLOTH, a familiar name for the clergy in general, or the clerical profession.—SYN. of 'clothes': dress; attire; apparel; array; costume; habit; clothing; garment; vesture; vestment; raiment; garb.

CLOTHES'-MOTH: the name common to a number of species of small moths of the genus *Tinea*, the larvæ or caterpillars of which are extremely destructive to woolen clothes, furs, stuffed quadrupeds and birds, etc. *Tinea destructor* is one of the most annoying of these insect pests. It is of a satiny buff color, the wings deflexed when at rest. The larva is about a quarter of an inch long, with only a few hairs, white, with a slate-colored line down the back, an ochreous head, and 16 legs. *T. tapezana* has the upper wings black at the base, the rest of the wing white. *T. sarcitella* is another very common species, of a silky gray color; the head, thorax, and base of the superior wings white; the wings folded flat on the back when at rest. The larva is covered with scattered hairs. These moths are most abundant in the warmer seasons of the year, but their larvæ carry on their destructive operations even during winter. Guided by instinct, the female moth lays her eggs where the larvæ may find their appropriate food, consisting of substances indigestible to almost every other creature; and the larvæ, being furnished with minute but strong and sharp jaws, not only begin to eat as soon as they are hatched, but to cut the fibres of the substances on which they feed into little bits, and to unite them by means of a glutinous silk of their own producing, so as to form for themselves cases. lined inter-

nally with silk; and in these they constantly abide, adding to them at the anterior end as their own increase of size requires, and also widening them, by slitting them down the middle, and mending them with additional materials. All this may be observed by transferring the same moth-larva to different pieces of flannel in succession, of different colors. The larva of *Tinea tapezana* works its way through woolen stuffs in an arched gallery, carrying its little case with it. *T. pellionella* makes similar tunnels in furs. *T. granella* is destructive to books as well as to grain: see CORN-MOTH. The best means of preventing the ravages of moths are perfect cleanliness, with brushing, beating, and shaking, frequent inspection of articles, and their exposure to light and air. Spirit of turpentine is used for killing them; the vapor arising from a sponge dipped in this liquid is fatal to such as it sufficiently reaches; they are killed also by the heat of a brisk fire or of an oven.

CLOTHO, n. *klō'thō* [L. or Gr., the spinner]: youngest of the three Moiræ, Parcæ, or Fates, represented as holding a distaff from which she spun the threads of mortal lives; sometimes pictured wearing a crown with seven points or stars see LACHESIS.

CLO'THO: genus of spiders, of which the only known species, *C. quinquemaculata*, native of the s. of Europe and n. of Africa—about half an inch long, long-legged, brown, with black abdomen, marked with five yellowish spots—is interesting on account of its habits and the sort of tent which it spins for itself. This curious structure is in shape like a limpet shell, about an inch in diameter, and is fastened to the under side of stones or in crevices of rocks, not by its whole circumference, but by seven or eight points only. Within this the eggs are deposited in several bags of lenticular form. The parent creeps in and out under the edges of her tent, and supplies the young with food for some time.

CLOTILDA, *klo-til'da*, SAINT: 475–545: daughter of Chilperic, King of Burgundy, and wife of Clovis, King of the Franks. Her parents and brothers were killed by her uncle Gundebald, who spared and educated her, but opposed her marriage. Following her mother in the Christian faith, she was a favorite with the clergy, who aided her escape; she was married 493, and accomplished her husband's conversion 496. Their vengeance paused at the victory near Langres, when her uncle became tributary; but after Clovis's death, 511, Clotilda, whose religion did not include forgiveness of injuries, stirred up her sons to renew the war, and had her cousin Sigismund, with his wife and children, thrown into a well. Burgundy was now united to the Frank empire. Clotilda spent her later years at Tours, near St. Martin's tomb, in austere devotions, and in founding churches and monasteries. She was buried in the church of St. Genevieve, built by her husband in Paris, and she was canonized by Pelagius I. Her remains were burned by the Abbè Rousselet in the Revolution, to save

them from desecration; her ashes are now in the church of St. Leu. A fine church has been built in her honor, and her statue is in the Luxembourg. Her son, Clotaire I. (497–561), murdered his nephews, and had his own son burned alive with wife and children. Her daughter Clotilda was abused and mortally wounded, 531, by an Arian husband, Amalaric, King of the Visigoths.

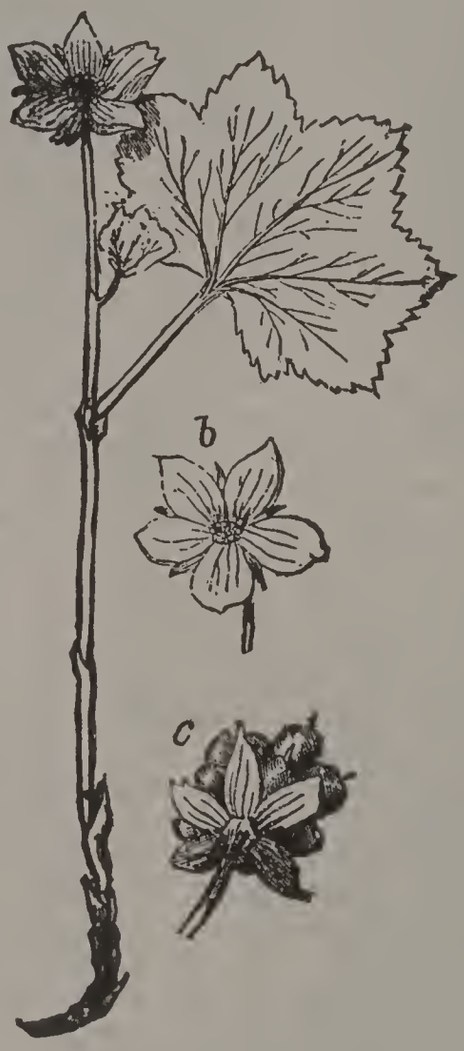
CLOTPOLL, n. *klŏt'pōl* [*klot*, and *poll*]: a clodpoll; a blockhead; a dull, stupid fellow.

CLOUD, n. *klowd* [AS. *clūd*, a round mass, as of rock: old Dut. *clote*, a cloud—allied to *clod*, being vapors drawn into *clods*, or *separate masses:* Gael. *clud*, a patch, a clout]: vapor formed into separate masses; a mass of visible vapor floating in the atmosphere; a great multitude, in the sense of a diffused and indistinct mass; a kind of soft woolen scarf: V. to obscure or darken; to overspread with clouds; to make of a gloomy or sullen aspect; to sully; to tarnish; to become obscure; to grow cloudy. CLOUD'ING, imp. CLOUD'ED, pp.: ADJ, having a variegated appearance like white, fleecy clouds; deficient in clearness; applied to a title to property when it is apparently imperfect. CLOUD'Y, a. *-ĭ*, overcast; obscure; gloomy; dispiriting; semi-opaque. CLOUD'ILY, ad. *-lĭ*. CLOUD'INESS, n. the state of being cloudy; dimness; darkness. CLOUD'LESS, a. without a cloud. CLOUD'LESSLY, ad. *-lĭ*. CLOUD'BERRY, the mountain-bramble, abounding in the Highlands of Scotland—so named from the high situations where found; the *Rubus chamæmōrus* or ground mulberry, ord. *Rosācĕæ*. CLOUD-CAPT, crowned with mist or clouds; very high. CLOUD-WRAPT, *-răpt*, enveloped with mist or clouds; obscure. IN THE CLOUDS, beyond the range of the eye—applied to flights of fancy, or to confused and obscure representations; absent; not attending to what is going on around. UNDER A CLOUD, under suspicion; in social disrepute. *Note.*—Strictly *water-vapor* is colorless and invisible,—a *cloud* is this vapor condensed into very minute drops. Clouds are classified by their form of cirrus, cumulus, etc.

CLOUD, ST., *sènt klowd*, Fr. *săng klô:* town of France, dept. of Seine-et-Oise, on the declivity of a hill near the Seine, 5 m. w. of Paris. Its present name is said to be a corruption of St. Clodoald, the name of a grandson of Clovis, who retreated to the little village of Novigentum to escape the fury of his uncle, Clotaire, and became a monk. After his death, the village took the name of the pious prince, whose relics were sacredly preserved, and whose tomb was the scene of many miracles. St. Cloud figures often in the wars of the middle ages. Henry III. was assassinated here, 1589, by the fanatical monk Jacques Clement. St. Cloud was long famous on account of its magnificent château, built by Mazarin, and embellished by successive dukes of Orleans, who possessed it till 1782, when it passed into the hands of Marie Antoinette. Here Bonaparte, 1799, was named first consul; and in this place Charles X. signed the ordinances which produced the revolution of 1830. But during the siege of Paris, 1870,

Oct. 13, the château was set on fire and almost entirely destroyed by the French artillery from Mont Valerien; apparently because it was supposed to be the headquarters of the German staff. Pop. 6,000.

CLOUD'BERRY (*Rubus Chamæmorus*): plant of the same genus with the bramble, though of very different appearance, having a herbaceous single-flowered stem destitute of prickles. The plant is of humble growth, 8–10 inches in height; the leaves few, large, lobed, and somewhat kidney-shaped; the flower large and white, male



Cloudberry.
b, the flower; *c*, the fruit.

and female flowers on separate plants, the female plant producing an orange-red fruit equal in size to a brambleberry, of an agreeable flavor. It is a native of n. Europe, Asia and America. In Britain, it is chiefly confined to elevated moors; in Norway and Sweden, it is much more abundant, and the fruit is highly valued and made into excellent preserves. Unfortunately, the plant is of difficult cultivation, and attempts to make it produce fruit freely in gardens are not usually successful.

CLOUDS.

CLOUDS: masses of fog, consisting of minute particles of water, often in a frozen state, floating in the atmosphere. When air saturated, or nearly so, with vapor, has its temperature lowered, either by ascending and becoming rarer, or by meeting a colder current, a portion of the vapor loses its gaseous form, and becomes condensed into minute specks of water: see EVAPORATION: DEW: RAIN: SNOW-LINE. A cloud, therefore, does not consist of vapor, in the proper sense of the word, but of water in the form of dust, as it were. How this water-dust is suspended in the atmosphere—why the particles do not descend as soon as formed, has never been satisfactorily explained. It has been assumed that the watery particles are hollow, like blown bubbles. But there is no proof of this; nor would the hollowness of the particles account for their floating, unless it could be shown that they must be filled with a gas lighter than the surrounding air. Professor G. G. Stokes holds that they are prevented from falling mainly by the friction and drag of the air particles, just as fine powders remain suspended in liquids of much less specific gravity than themselves. But, as Sir J. Herschel says, rising and horizontal air-currents must also oppose the fall of clouds; for at night, in the absence of rising air-currents, they often descend to, and dissolve in lower and warmer levels.

A general haze of precipitated vapor covering the sky, and coming down to the earth, is termed a *Fog* or *Mist;* and the term cloud is usually confined to masses of fog floating in the higher regions, and not descending to the ground. They are mostly within a mile of the earth's surface, and none are more than five or six miles above it. They rise higher in the equatorial regions than toward the poles. Clouds spread and move with the wind in varied, often grand, forms; they are generally disposed in beds parallel to the earth's surface; vertical clouds occur rarely, if at all.

Mr. Luke Howard's classification of clouds, proposed in 1802, into three primary forms—Cirrus (Ci.), Cumulus (Cu.), and Stratus (St.); three intermediate—Cirro-cumulus (Ci.-cu.), Cirro-stratus (Ci.-st.), and Cumulo-stratus (Cu.-st.); and one compound form, Nimbus (Ni.)—has been universally adopted, and holds good in all climates and atmospheric conditions.

Cirrus, or curl cloud, consists of parallel, curling, flexuous, diverging, and partly straight fibres, increasing in any or in all directions by elongation, branching, or addition of new fibres. It is the highest and least dense of clouds; forms at least three m. above the earth; varies most in extent, direction, and shape; retains longest its varied outlines; and is the longest illuminated after sunset and before sunrise. It resembles a mare's or cat's tail, a lock of hair, fine trellis-work, or thin, silvery streaks, and it may cover all the sky Cirri seem to arise from the mixing of parallel air-currents, or are the relics of dissolving clouds drawn out in fibres by wind. Threads and groups of Ci., during

gentle wind after severe weather, presage serene, settled weather. But after a long tract of fair days, whitish fila-

Cirrus.

ments or parallel bands of Ci. crossing the sky, with the ends converging by perspective in each horizon, and travelling longitudinally, though seemingly stationary, foretell a change to wet. Ci., being so high, must consist of minute snow crystals, whose refractions and reflections produce the halos, coronæ, and mock suns and moons almost restricted to this cloud and its derivatives the Ci.-st. and Ci.-cu. The fibres often wave back and fore, or to and from each other. Ci., especially with fine tails, varying much in a few hours, presage rain or snow, and windy, variable weather.

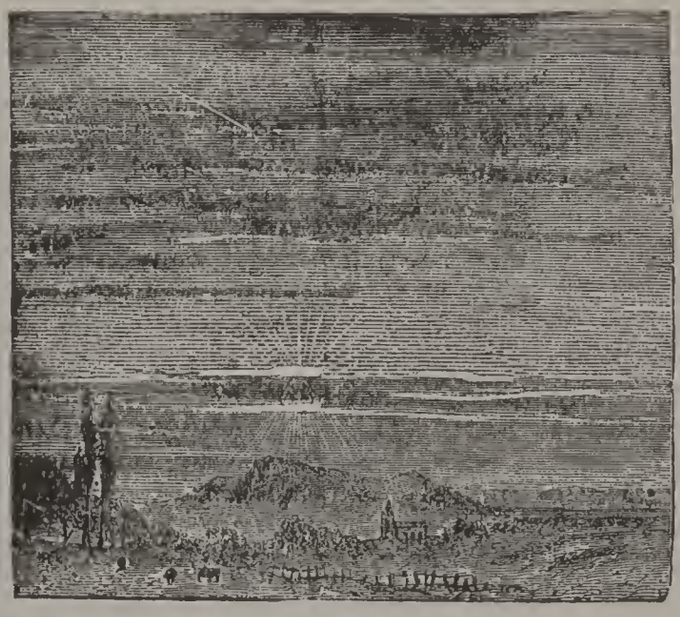
Cumulus, ball of cotton, day or summer cloud, consists

Cumulus.

of dense, convex, hemispherical, or conical heaps of small roundish C., piled or stacked on each other. The heaps

enlarge upward from a horizontal base, and have crenated tops; they sometimes unite into stupendous white-topped mountains. It forms, says Sir J. Herschel, in summer calms by the rise of columns of vapor from marshes, lakes, and rivers, into the colder and quickly saturable lower regions of the air; for one liquid traverses another in cylinders. Cumuli begin after sunrise as a few scattered specks in the clear sky; these specks enlarge and unite to form C., which often nearly cover the sky in the afternoon, and generally decrease and vanish about sunset; but rain follows if they increase in number and darkness in the evening. Their tops become Ci. in very dry air. Cu., of pleasing forms, dispositions and colors, and of moderate size, presage fine, dry, warm, and calm days; but cold, rain, and tempest follow dark, abrupt, dense, shaggy Cu., covering the sky, and rolling on each other. Hemispherical, silvery-white Cu. presage thunder.

Stratus, fall, or night-cloud, the lowest of C., is a widely extended, horizontal sheet, of varied thickness, of white mist touching or near the earth. In density it is between Ci. and Cu., and it increases from below. It is common in summer and autumn, often from sunset to sunrise, and is densest at or after midnight. It arises in calm, clear evenings, after warm days, from the cooling of moist air



Stratus.

on damp ground, marshes, lakes, rivers, or from the cooling of moist air mixed with smoke enveloping great cities. From a height it is seen spreading around like a sea, and creeping up hillsides. After sunrise it rises from the ground, breaks up into Cu., and vanishes with the increasing heat, to be followed by a serene day; but it may quietly accumulate in layers, and become a Ni. It does not wet objects that it touches, and thus differs from a variety of Ci.-st. of like external aspect.

Cirro-cumulus, or sonder-cloud, consists of Ci. sinking in

the air, and compressed into dense roundish-white cloudlets, or wooly irregular tufts, generally at great heights. It often forms a beautiful sky in beds like flocks of sheep at rest. It is often seen through breaks in lower C. moving differently. It may vanish or pass into Ci. or Ci.-st. Solar and lunar coronæ appear in it. It occurs in warm, dry weather, and between summer showers, and presages increased heat. Ci.-cu. very dense, round, and close, and with Cu.-st., presages a storm or thunder. In winter it precedes a thaw and warm, wet weather.

Cirro-stratus, or vane-cloud, consists of long, thin, horizontal clouds, with bent, or undulated edges. It often resembles shoals of fish, or has a barred appearance—the mackerel-backed sky. When alone, or with Ci.-cu., it forebodes rain, snow, and storm. Waved Ci.-st. generally attends heat and thunder; it often forms an extended, shallow bed or thin veil, through which the sun and moon shine faintly. This variety oftenest presents the finest solar and lunar halos, parhelias and paraselenes, and it is the surest prognostic of rain and snow.

Cumulu-stratus, or twain-cloud, is a Ci.-st. mixed with Cu. heaps, or a wide, flat base surmounted by a bulky Cu., with fleecy protuberances or rocky and mountain masses. It resembles a thick-stemmed fungus, with a flat, anvil-shaped, or cirrous top. It is much denser than Cu., though the air is not dry enough to round off sharply its tops. It often forms vast banks of cloud, with overhanging masses. It is common toward night in dry, windy weather, when it has a leaden hue. It generally arises from Cu. becoming denser, wider, and protruding in large irregular projections over the base. It tends to overspread the sky, and partly or wholly to become Ni., and fall in showers. Cu.-st. is intermediate between clouds indicating fair, and those indicating rough, rainy weather, and attends sudden atmospheric changes. Distinct Cu.-st. forms before thunder Cu.-st. increases the grandeur of mountain scenery, and drops on and envelops mountain-tops lik a curtain.

Nimbus, or Cumulo-cirro-stratus, the black rain-cloud, is a cloud or mixed system of clouds, ending in showers of rain, snow, or hail. It is a dense, continuous, horizontal black or gray sheet, with fringed edges, a cap of Ci., and Cu. on the sides and below. Before rain, vast towering masses of Cu. often pass into Cu.-st., which, increasing in density, darkness, irregularity, and extent, become Ni. capped by Ci.-st. Thunder-storms are always accompanied by Ni. in its most perfect form.

The term *scud* has been applied to loose vapory fragments of C. driven by wind, and *cumulonus* to shaggy cumuli.

The formation and height of C. vary with the quantity of vapor in the air, the course and height of air-currents, the climate, season, temperature, disposition, and extent of sea and land, and the height of land. Cloud-strata on the Pyrenees vary in average thickness from 1,600 to 3,400 ft. The lower surfaces of considerable masses of clouds in all climates are probably 2,500 to 3.000 ft. above the earth.

CLOUDS.

1. Cumulus. 2. Cirrus.

Remarkable cloud-rings prevail over the calm zones of the equator, and over those of Cancer and Capricorn. Clouds, viewed from above in bright sunshine by the aëronaut or mountaineer, appear as dense volumes of steam or masses of white cotton. Kaemtz regards the usual height of Ci. as 10,000 to 24,000 ft.; Cu., 3,000 to 10,000; Ni.,1,500 to 5,000; but Ci. may descend to 2,000 or 3,000 ft., and Ni. to within a few hundred ft. of the earth.

Clouds moderate the sun's rays during day, and the earth's radiation during night. They always exhibit positive or negative electricity, but of greatest tension in thunder-storms. They are the sources of the moisture required by plants; of the water of springs, lakes, and rivers; and of the polar, glacial, and winter snows, which cover temporarily or permanently parts of the earth.

In Britain, six or seven tenths of the sky is on an average daily obscured by clouds. There is most cloud in winter, and about mid-day, and least in May or June, and during night. Summer and autumn nights are freest of clouds. All the forms of clouds may be seen in one day, often very much commingled. In North America, the average of cloudless sky is much greater.

CLOUDY BAY: see NEW ZEALAND.

CLOUGH, n. *klŏf:* in *com.*, an allowance of two lbs. for every three cwt. for the turn of the scale to the wholesale purchaser of goods; in *drainage*, a sluice used in returning water to a channel after depositing its sediment on the flooded land.

CLOUGH, n. *klŭf* [Icel. *clofi*, a gap]: a cliff; a ravine.

CLOUGH, *klŭf*, ARTHUR HUGH: 1819, Jan. 1—1861, Nov. 13; b. Liverpool: poet. He was at Charleston, S. C., 1823-28, with his father, a cotton-merchant; was educated at Rugby, with Stanley, Matthew Arnold, and Thomas Hughes, and was one of Dr. Arnold's favorite pupils; entered Balliol College, Oxford, 1836, and became a fellow of Oriel 1842, and tutor 1843. Unable to accept the rising Tractarian views, he was as far from the old Evangelicalism; and, feeling some disharmony between his opinions and his surroundings, he resigned, 1848, and published his longest poem, the *Bothie of Tober-na-Vuolich*, in hexameters. He went abroad and was in Rome during its siege by the French. Some minor poems of great beauty, *Ambarvalia*, appeared 1849. He was principal of University Hall, and prof. of English at University College, London, 1849-52, and then spent 8 mos. at Cambridge, Mass., where he was known and loved by the best men. He returned to London 1853, July, to be an examiner in the education office of the privy council, and soon married. *Amours de Voyage*, a poem in epistolary hexameters, appeared in the *Atlantic Monthly* 1858, and his scholarly revision of Dryden's Plutarch (begun 1853) in Boston 1859. His labors were increased by aid rendered to his wife's cousin, Florence Nightingale, in the beneficent reforms to which her life was devoted. Seeking in vain to mend broken health

by travel, he died at Florence, deeply beloved and lamented by those who knew him best, and leaving in MS. a tragedy, *Dipsychus, Mari Magno,* or *Tales on Board,* and some exquisite though unpolished lyrics. His poems are very precious to such as value delicately subtle thought, and fresh, unhackneyed, manly feeling; they belong to no school, but are deeply impregnated with the spirit of the time and with his own rare character and reverent skepticism. They appeared, with a memoir by C. A. Norton, in Boston, 1862, and with his *Prose Remains* and a sketch of his life by F. T. Palgrave, in London, 1869. Matthew Arnold has commemorated him in *Thyrsis.*

CLOUGH-LEIGHTER, *klŭf'lā'tėr,* Henry, American organist and composer: b. Washington, D. C., 1874, May 13. He studied at Columbia University 1887-9, and at Trinity University, Toronto, Canada. He was organist at various Washington churches 1890-99, of Grace Church, Providence, R. I., 1899-1900, instructor in musical ethics and theory in the Howe School of Music, Boston, Mass., 1900-1, and since then on editorial staff of Oliver Ditson Co. Among his many compositions are a Festival Service in D major (1896); *Te Deum Laudamus,* G major (1898); *Te Deum Laudamus,* G minor (1901); song, *Like a Rose Should Be* (1901); etc.

CLOUS, John Walter, American soldier: b. Germany, 1837, June 9. He came to America in 1855 and engaged in business. He enlisted in the United States army 1857, Feb. 2, and was promoted second lieutenant 1862, Nov. 29. He took part in the siege of Yorktown, the Seven Days' battles in 1862, June, Malvern Hill, Second Bull Run, Antietam, Fredericksburg, Chancellorsville, and Gettysburg, being twice brevetted for gallant conduct at the latter. He served on the frontier and in Indian campaigns 1868-86, as judge advocate in many important trials and cases 1862-86, was assistant to the judge advocate-general 1886-90, and professor of law at West Point 1890-6. During the Spanish-American war he was appointed a brigadier-general of volunteers, and served on the staff of Maj.-Gen. Miles. He attained his lieutenant-colonelcy 1892, Feb. 12. He was secretary and recorder of the commission for evacuation of Cuba, on staff of Maj.-Gen. Brooks, as deputy judge-advocate-general; promoted colonel and appointed judge-advocate-general, U. S. A., with rank of brigadier-general, in 1901, and retired the same year. He is the author of lectures on *Military and Martial Law and Suspension of the Writ of Habeas Corpus,* delivered at Union College in the Butterfield lecture course.

CLOUT, n. *clowt* [AS. *clut,* a patch—primary sense, a blow: Gael, *clud;* W. *clwt,* a rag: Dut. *klotsen,* to strike]: a small piece of cloth or a rag; a patch; a piece of cloth or leather to repair a hole or breach; a piece of cloth for cleaning or kitchen use; small, flat-headed, malleable nail: V. to patch; to mend or repair by putting or sewing on a patch; to put together coarsely and unskilfully. Clout'ing, imp. Clout'ed, pp.: Adj. covered with a clout;

coarsely mended. A CLOUT ON THE HEAD, a blow or stroke on the head, as with a flap of cloth or the open hand. CLOUTED CREAM, cream obtained from the milk by gradually heating it in deep pans almost to the boiling point, so as not to break the skin or *clout* formed on the surface; cream thicker than ordinary cream—also spelled CLOTTED CREAM.

CLOUTED, or CLOTTED, CREAM: obtained by heating milk in a shallow wide pan on a hot plate or over a slow charcoal-fire. The milk must be strained, as soon as it comes from the cow, into the pan, where it must stand for 24 hours before heating. It usually takes from half an hour to three-quarters of an hour to heat the milk completely; but it must not boil. It then stands for 24 hours, when the cream is skimmed off, and a little sugar thrown on the top. The result is clouted cream.

CLOVE, n. *klōv* [Sp. *clavo*, a nail, a clove: F. *clou*, a nail —from L. *clavus*, a nail]: a kind of spice, consisting of the dried unexpanded flowers of a tree of the myrtle tribe—so named from their appearance as small-headed nails; the flower-buds of the clove tree, *Căryōphyl'lus arōmătĭcus*, ord. *Myrtācĕæ*. CLOVE-GILLYFLOWER, a beautiful flower having a peculiar scent—also called *clove-pink*, *carnation-pink*, etc.; the *Dian'thus căryōphyl'lus*, ord. *Caryophyllācĕæ*. CLOVE-BROWN, a deep brown of the peculiar color of the clove.

CLOVE, n. *klōv* [Low Ger. *kloven*, to cleave: Dut. *klove*, a fissure, AS. *cluf*, a tuber]: a division of a root of garlic; in *bot.*, *cloves*, applied to young bulbs, as in the onion.

CLOVE, n. *klōv* [probably connected with CLEAVE 2 which see]: a weight, part of the *wey*, being 7 pounds.

CLOVE BARK: another name for CULILAWAN BARK (q.v.).—Another bark which occurs in commerce under the name of C. B is that of the *Myrtus caryophyllata*, native of Ceylon and the Mascarene Isles; in sticks two ft. long, formed of several pieces of very thin and hard bark, rolled up one over the other, of a deep brown color, and of a taste similar to that of cloves. It has properties like those of cinnamon.

CLOVEN, v. *klō'vn* [pp. of CLEAVE 2, which see]: parted; divided into two parts. CLOVEN-FOOTED, having the foot of two toes with a hoof for each, as the ox. TO SHOW THE CLOVEN FOOT, to reveal by some acts base or dishonorable designs—in allusion to the feet of a goat ascribed to Satan.

CLOVER, LEWIS PIERRE, American lawyer and journalist: b. Springfield, Ill., 1864. He was educated at Racine College, Wisconsin, and admitted to the bar of Illinois in 1885. He is a great-grandson of Ninian Edwards, a former governor of Illinois, and grandson of Ninian W. Edwards, a distinguished Illinois lawyer. He is a grand-nephew of Mary Todd Lincoln. He has been a member of the staff of the New York *Evening Sun* for several years, writing upon legal subjects and proceedings.

CLOVER, n. *klō'vĕr* [AS. *claefer;* Dut. *klaver*—from Low Ger. *kloven,* to cleave]: common field herbs called trefoil or *trifolium,* used for the fodder of cattle; the common red clover is *Trĭfōlĭum prătĕn'sĕ*—the white or Dutch clover is *T. repens,* ord. *Legūmĭnōsæ,* sub.ord. *Papĭlĭōnăcĕæ.* CLO'VERED, a. *-vĕrd,* abounding in clover. TO LIVE IN CLOVER, to live in abundance. TO GO FROM CLOVER TO RYE-GRASS, to go from a better to a worse.

CLO'VER, or TRE'FOIL (*Trifolium*): genus of plants of the nat. ord. *Leguminosæ,* sub-order *Papilionaceæ,* containing a great number of species, natives chiefly of temperate climates, abounding most of all in Europe, and some of them very important in agriculture as affording pasturage and fodder for cattle. The name C. is indeed popularly extended to many plants not included in this genus, but belonging to the same nat. ord., and agreeing with it in having the leaves formed of three leaflets, particularly to those of them which are cultivated for the same purposes, and sometimes collectively receive from farmers the very incorrect designation of *artificial grasses,* in contradistinction to *natural grasses,* i.e., true grasses. See MEDICK and MELILOT. The true clovers (*Trifolium*) have herbaceous, not twining stems; roundish heads or oblong spikes of small flowers, the corolla remaining in a withered state till the ripening of the seed; the pod inclosed in the calyx, and containing one or two, rarely three or four, seeds. The most important species to the farmer is the COMMON RED C. (*T. pratense*), native of most parts of Europe, grow-

Red Clover (*Trifolium pratense*).

ing in meadows and pastures. It is a perennial, but is generally treated as if it were a biennial. Its heads of flowers are oval or nearly globular, very compact, about

an inch in diameter, purple, more rarely flesh-colored or white; the tube of the calyx is downy; the stipules run suddenly into a bristly point. The leaflets have very often a whitish horseshoe mark in the centre. This plant was formerly reputed very noisome to witches; knights and peasants wore the leaf as a potent charm against their arts. It is supposed that C. found its way into England from the Netherlands about the time of Queen Elizabeth; but it was not until the close of last c. that it was introduced into Scotland, where it is now universally prevalent. The ZIGZAG C. (*T. medium*), also called MEADOW C., MARL-GRASS, and COW-GRASS, much resembles the common red C., but is easily distinguished by the smooth tube of the calyx, and by the broader, less membranaceous, and gradually acuminated stipules. The stems are also remarkably zigzag, and more rigid than in *T. pratense;* the heads of flowers are larger, more lax, more nearly globose, and of a deeper purple color; and the leaflets have no white spot. It is common plant in most parts of Europe. WHITE or

White Clover (*Trifolium repens*).
a, head of flowers when the pods are ripening.

DUTCH C. (*T. repens*) is also a common native of most part. of Europe. When a barren heath is turned up with the spade or plow, white C. almost always appears. It is said to be a native also of North America, where it is abundant, though perhaps only naturalized. The flowers of all kinds of C. are the delight of bees, but those of this

species perhaps particularly so.—Alsike Clover (*T. hybridum*), a perennial, regarded as intermediate in appearance between the common red clover and the white clover, has of late attained a very high reputation. It was introduced into Britain from the s. of Sweden probably not far from 1850.—Crimson Clover, or Italian Clover (*T. incarnatum*), an annual, native of the s. of Europe, with oblong or cylindrical spikes of rich crimson flowers, is much cultivated in France and Italy, and has of late been extensively grown in parts of England, producing a heavy crop. —Moliner's Clover (*T. Molineri*) much resembles crimson clover, but is biennial, and has pale flowers. It is cultivated in France and Switzerland.—Alexandrian Clover or Egyptian Clover (*T. Alexandrinum*), an annual species, native of Egypt, universally cultivated there, where it is the principal fodder for cattle, has been found less luxuriant and productive in the colder climate of Britain. It has oval heads of pale yellow or whitish flowers.—Yellow Clover or Hop Trefoil (*T. procumbens*) is not much esteemed. It has smaller leaves and heads of flowers than any of the cultivated species. Its flowers are yellow.

It is little more than a century since clovers were introduced into field culture in Britain. They are now universally cultivated on large farms in alternation with grain crops. The kinds most generally sown are the *Common Red, Cow-grass, Dutch White, Yellow,* and *Alsike.* The *Common Red* is the finest and most valuable, but it is difficult to grow unless on naturally rich soils. In America it grows well on sandy loams, though sown every alternate year on the same land. But in Britain the land is thought to become 'clover sick' when sown too frequently with this crop. An interval of not less than eight years is thought advisable. From six to 20 lbs. of seed per acre is the quantity sown. Red clover is most esteemed for being mixed with rye grass for the making of hay. When it grows well, it bears to be cut more than once in a year. *Cow-grass* much resembles the common red clover. It is coarser but hardier and better suited for pasture, as it bears more herbage, and comes up better after being eaten close down by cattle. *Dutch White Clover* is esteemed only for pasture; it grows short and thick on the ground, but throws out fresh stems and flowers during most of the growing season. In the s. of England, it is sometimes sown with but little rye-grass seed; in Scotland as much as a bushel or a bushel and a half of rye-grass is mixed with it for pasture. *Yellow Clover* is sown chiefly on ground where neither the white nor red grows freely. It is not sown so frequently as it probably ought to be, for it rises early in spring, and a mixture of it with other clovers forms good pasture on all grounds. *Alsike Clover* is a recent and desirable addition in Britain; it rises much higher than white clover. Land must be thoroughly cleaned of perennial weeds before it is sown with clover as the land cannot be subjected to cultivation while it is under this plant;

clover, therefore, is always sown in the end of the rotation, or as near the fallow or turnip crop as possible. It is sown early in spring among the winter-wheat, or with the barley crop, and slightly harrowed in; for the seeds, being small, are not difficult to bury. Farm-yard manure is as good as any for clovers. A well-manured soil greatly assists in keeping the plants from dying out in spring. Clovers, like grasses, have an important use in restoring fertility to land exhausted by grain-crops. Their leaves gather food—carbonic acid and ammonia—from the atmosphere, which they store up in their roots and stems; and these, decomposing, afford food for cereals or other crops which are more dependent on a supply within the soil.

The caterpillars of a number of species of moth feed on the leaves of different kinds of clover, but the insects most injurious to clover crops are weevils of the genera *Apion* and *Sitona:* see CLOVER-WEEVIL and PEA-WEEVIL.

CLO'VER-WEE'VIL (*Apion*): genus of small pear-shaped weevils (coleopterous insects, section *Tetramera*, family *Rhynchophora*), different species of which feed on the leaves, and their larvæ on the seeds of clover, some also on those of tares and other leguminous plants. Like the other weevils the perfect insect has the head very much elongated into a sort of muzzle. *A. apricans* often does much injury to fields of common red clover, particularly interfering with the production of seed. It lays its eggs among the flowers, and the little grubs eat their way through the calyx into the pod. It is of a bluish-black color, little more than a line long. *A. flavipes* is attached in like manner to white clover, and other species of clover have their particular weevils.

CLOVES: flower-buds of the Clove tree (*Caryophyllus aromaticus*). The genus to which this tree belongs is of the nat. ord. *Myrtaceæ;* the calyx has a cylindrical tube and 4-cleft border, the corolla consists of four petals united by their tips; the stamens are in four clusters; and the fruit is an oblong, dry berry with one or two cells and as many seeds. The clove tree is from 15 to 40 ft. high, with a beautiful pyramidal head. The leaves are large, ovate-oblong, acuminated at each end, evergreen; the flowers are small, but produced in great profusion in cymes. Leaves, flowers, and bark have an aromatic odor. The ripe fruit in shape resembles an olive, but is not quite so large; it is of a dark-red color; it sometimes appears in commerce in a dried state, under the curious name of *Mother Cloves;* it has an odor and flavor similar to cloves, but much weaker: the broken fruit-stalks are sometimes also used for the same purposes as cloves, but the flower-buds themselves are the principal, useful product of the tree. They are gathered, and are dried by exposure to the smoke of wood fires, and afterward to the rays of the sun, or by the latter alone. When first gathered they are reddish, but become of a deep-brown color. The unexpanded corolla forms a little round head at the end of the calyx tube, which is about half an inch long, and thus the appearance is not unlike

that of a little nail, whence the name. The clove-tree is a native of the Moluccas, and the Amboyna Cloves are still esteemed the best; but the tree is now cultivated in Sumatra, Bourbon, Mauritius, and some parts of the W. Indies, and will probably soon be common in many other tropical countries. The Dutch, to secure to their own colonists a monopoly of the trade in this spice, destroyed the trees in the other Molucca Islands, and confined the cultivation of them to the isle of Ternate. It is not deemed quite certain that cloves are the *karyophyllon* of the ancient Greeks; but before the discovery of the Spice Islands eastern merchants brought them from Arabia, Persia, and Egypt, to the harbors of the Mediterranean, from which the Venetians and Genoese diffused them over Europe.

The wild-clove tree of the W. Indies is *Myrcia acris*: see MYRCIA. The medical value of cloves is due to the presence of eugenol, $C_{10}H_{12}O_2$, in the volatile oil. Eugenol is extremely active, acting like the phenol, or carbolic acid group, to which it is related. Clove is a marked local anæsthetic, a strong antiseptic and bactericide, an excellent stimulant to the sympathetic nervous system, expelling flatus from the stomach and the intestines, by increased peristalsis, and increasing the flow of the gastric and intestinal juices. Its value in toothache is due to its anæsthetic and bactericidal properties. A number of new compounds of eugenol are on the market. Benzoyl-eugenol and cinnamyl-eugenol are used in the treatment of tuberculosis.

CLOVIS, *klō'vis*, Fr. *klovēs'* [old Ger. *Chlodwig*, i.e., 'famous warrior;' modern Ger. *Ludwig;* Fr. *Louis*], King of the Franks: 465-511: by the death of his father, Childeric, he became king of the Salian Franks, whose cap. was Tournay. His first achievement was the overthrow of the Gallo-Romans under Syagrius, near Soissons. He then took possession of the whole country between the Somme and the Loire, and established himself in Soissons. In 493, he married Clotilda, daughter of Chilperic, a Burgundian prince. His wife was a Christian, and earnestly desired the conversion of her husband, who, like most of the Franks, was still a heathen. In a great battle with the Alemanni, at Tolbiac, near Cologne, Clovis was hard pressed and as a last resource, invoked the God of Clotilda, offering to become a Christian, on condition of obtaining the victory. The Alemanni were routed, and on Christmas day of the same year (496) Clovis and several thousands of his army were baptized by Remigius, bp. of Rheims: see CLOTILDA, SAINT. Most of the western Christian princes were Arians, but Clovis was strictly orthodox, and, in consequence, was saluted by Pope Anastasius as the 'Most Christian King.' In 507, love of conquest concurring with zeal for the orthodox faith, Clovis marched to the s.w. of Gaul against the heretic Visigoth, Alaric II., whom he defeated and slew at Vouglé, near Poitiers, taking possession of the whole country as far as Bordeaux and Toulouse, but was checked at Arles, 507, by Theodoric, King of the Ostrogoths. Clovis now took up his residence in Paris, where he

died. His great aim was the subjugation of all the Frankish princes, and the union of the whole Frankish people into a single powerful kingdom. The means he employed to secure this end were cruel and unscrupulous, but the end itself would have been very beneficial, if he had not frustrated it at his death by re-dividing the newly organized realm among his four sons, and exposing it to the very perils from which he had rescued it.

CLOWES, *klowz*, FRANK, English chemist: b. Bradford, Yorkshire, 1848. He was educated at the Royal School of Mines, London; Royal College of Science, Dublin; and the University of Würzburg, and was professor of chemistry at University College, Nottingham, 1881-97, and emeritus professor since 1897. He has published: *Text-book of Practical Chemistry and Qualitative Analysis; Text-book of Quantitative Analysis; Elementary Practical Chemistry; Introductive Quantitative Analysis* (1896); *Experimental Treatment of London Sewage* (1904); etc.

CLOWES, SIR WILLIAM LAIRD, English naval critic: b. London, 1856, Feb. 1; d. there, 1905, Aug. 14. He was educated at King's College, London; and from 1876 to 1895 was correspondent for various newspapers. He wrote much on naval development, and on art and sociology. His works include: *The Naval Pocket Book*, issued annually; *The Needs of the Navy; Four Naval Campaigns* (1902); and the novels, *The Captain of the Mary Rose* (1892); *Blood is Thicker Than Water* (1894); *The Great Peril* (1893); *The Double Emperor* (1894); *Told to the Marines* (1902); and also *The Miniature Cyclopedia* (1888); *Black America* (1892); *Eclogues* (1889). He was the editor and chief contributor to *The Royal Navy;* a *History from the Earliest Times to the Present* (1897-1902). He was knighted in 1902.

CLOWN, n. *klown* [Icel, *klunni*, a clumsy fellow: N. Fris. *klönne*, a clown: Dut. *kloete*, a lump, a block: Ger. *klotz*, alog; *klotzig*, blockish, rustic—*lit.*, a lumpish or blockish man]: a peasant; a rustic; one who has the rough manners of a rustic; an ill-bred man; one who plays the fool in a theatre or circus. CLOWN'ISH, a. like a rustic; coarse and ill-bred. CLOWN'ISHLY, ad. *-lĭ*. CLOWN'ISHNESS, n. rudeness of behavior; awkwardness.—SYN. of 'clown': peasant; countryman; hind; rustic; swain; buffoon; fool;—of 'clownish': rough; clumsy; coarse; ungainly; awkward; rustic; rude; uncivil; boorish; ill-bred.

CLOY, v. *kloy* [Eng. *clog*, a thick mass: OF. *cloyer*, and *encloyer*, to choke or stop up; comp. Gael. *claoidh* (*dh* is silent), to exhaust, to satiate]: to fill to loathing; to be incapable of further enjoyment by excess of indulgence; to satiate; to glut; to surfeit. CLOY'ING, imp. CLOYED, pp. *kloyd*, filled; glutted. CLOY'MENT, n. satiety or repletion.

CLOYD'S MOUNTAIN, BATTLE OF. On 1864, May 3, Gen. George Crook of the Union army marched from Fayette, W. Va., to break the Virginia & T. R.R. at

New River Bridge. He had 11 regiments of infantry and 2 batteries of artillery, in all about 6,100 men, brigaded under Col. H. G. Sickel, C. B. White, and R. B. Hayes. He marched through Raleigh, drove a small Confederate cavalry force from Princeton, and on the 8th reached Shannon's Bridge, seven miles from Dublin, where he was joined by 400 cavalry. Here he found next morning that the Confederates—three regiments and a battalion of infantry and two batteries—under Gen. A. G. Jenkins and Col. John McCausland, were barring his way, strongly posted behind log and rail breastworks, on a steep and thickly wooded spur of Cloyd's Mountain. Crook opened on the position with artillery, and then, under cover of the timber, sent White with his own brigade and two regiments of Sickel's to turn the enemy's right, and the moment they were engaged Sickel and Hayes charged directly to the front across a meadow swept by artillery and musketry fire, and up the steep ridge. Parts of the line were repulsed, again to rally and go forward, and after a hard contest, in which bayonets and clubbed muskets were used across the works, they were carried, the Confederates retreating to Dublin, leaving, as Crook reports, 230 wounded men as prisoners, and two guns, in his hands. The union loss was over 600, that of the Confederates about 500. Gen. Jenkins was mortally wounded and left on the field. Crook followed the retreating troops, and when near Dublin encountered about 500 of Gen. John H. Morgan's command, under Col. Smith, that had come from Sattville, and endeavored to cover McCausland's retreat. These Crook drove back, and at night he occupied Dublin. On the 10th he marched to Newborn and thence to New River Bridge, which McCausland tried to save, but after a two-hours' artillery duel in which Crook had 11 men killed and wounded, he seized and destroyed the bridge and the railroad for a considerable distance, then marched by way of Union, Alderson's Ferry, and Lewisburg to Meadow Bluff, which he reached on the 19th, his march harassed by the enemy's cavalry. Crook's entire loss was 109 killed, 513 wounded, and 72 missing. On his return march he was obliged to leave 200 of his wounded, with surgeons, who were captured. The Confederate loss, as reported, was 76 killed, 262 wounded, and 200 missing or captured.

CLŬB, n. *klŭb* [W. *clob*, a knob: Russ. *klub′*, a ball: Sw. *klabb*, a log: Icel. *klubba*, a knobbed stick: Gael. *cliob*, an excrescence; *lùb*, a bend]: a stick with one end heavier than the other; a thick, heavy stick or cudgel for beating or defense; a principal war weapon in ancient times, and now in barbarous countries; a number or *clump* of persons associated for a common purpose; the name of one of the suits of cards—so named from the knobbed appearance of the figures, being that of a black trefoil: V. to unite for a common end; to pay a share of a common reckoning; to beat with a club; to turn up and place together the club-ends of a number of rifles. CLUB′BING, imp. CLUBBED,

pp. *klŭbd:* ADJ. shaped like a club. CLUB-FISTED, a. having a large heavy fist; rough; awkward. CLUB-HOUSE, a place of resort for the members of a club. CLUB-LAW, brute force. CLUB-FOOT, n. a deformed foot. CLUB-FOOTED, a. having crooked or misshapen feet. CLUB-MOSS, a moss-like plant of the ord. *Lycōpŏdĭācĕæ* (q.v.). CLUB RUSH: see SCIRPUS. TO CLUB A MUSKET, to use it as a club by holding the barrel and striking with the butt-end. *Note.*—CLUB in the sense of 'a number of persons' may be derived from mid. L. *clubum*, a little chamber or cell, in the same way as *chamber* in a derived sense denotes 'an association.'

CLUB: term applied to a company or association for some common purpose, whether social, literary, political, or economical; usually a body of persons meeting for social or recreative purposes, and consisting of members belonging for the most part to some one class or occupation. What is known as club-life, as exhibited in London, had its origin in the days of Elizabeth, when the Mermaid Tavern, in Fleet street, enlivened by the wit and wisdom of Shakespeare, Raleigh, Ben Jonson, Beaumont, and Fletcher, became the home of a sort of club. Ben Jonson afterward founded a second club at the Devil Tavern, in the same street. Such clubs were meetings for social recreation, to which all were welcome who could bring wit and humor with them. In subsequent reigns, meetings of a similar racy character were very frequently held in taverns, but without much club formality. In last century Brooks's and White's clubs, and a few others named after the proprietors of the houses in which the meetings were held, were established by politicians of opposite parties, as the headquarters for parliamentary tactics.

The modern clubs of London, in which the *restaurant* or dining-room is an important feature, arose after the termination of the great war in 1815. Many naval and military officers, being no longer needed for war, were placed upon half-pay; and this half-pay was insufficient to support them without careful economy. If they could dine together at a club, it would be cheaper than if each maintained a separate establishment. Hence originated the United Service Club; and the success of this speedily led to the founding of others for different classes of society, and for persons of different political opinions. At the present time there are about 100 such clubs in London, among which the following: Alpine, Army and Navy, Arthur's, Athenæum, Brooks's, Carlton, Civil and Military, Conservative, East India United Service, Garrick, Guards', Junior Carlton, Junior United Service, Naval and Military, New University, Oriental, Oxford and Cambridge, Reform, Travellers', Union, United Service, United University, White's, Whitehall, and Windham's. All these, and some of the others, combine the *tavern* system with the *club* system. There are also about 20 working-men's clubs. Clubs are not confined to the metropolis.

Each principal club comprises a certain definite number of

members; it may be, for instance, 500, 1,000, or 1,500, and this number cannot be exceeded without a formal change in the rules. In some clubs the managing committee are empowered to admit distinguished persons to membership; but the general mode of admission is by ballot, each member having a vote. In some clubs one black ball or 'No' suffices to exclude a candidate; but, generally the rules are not so stringent. The members pay a sum of money on entrance, and then an annual subscription, the amounts varying much in different clubs. The entrance money may be required as capital, to assist in building the club-house, etc.; while the annual subscriptions after paying current expenses, leave a surplus for future contingencies. The more important clubs comprise morning or news rooms, libraries, coffee-rooms, dining-rooms, drawing-rooms, and a very complete culinary establishment. There are no arrangements for the members to sleep at the club-houses, except at certain establishments called club-chambers, which, however, are not properly clubs. Some of the clubs are furnished with bath-rooms, card-rooms, billiard-rooms, and smoking-rooms. The *restaurant* department is usually very complete; everything is of the best, and is supplied to the members as nearly as can be at prime cost. In nearly all the clubs hard drinking is discouraged. It has been ascertained at two or three of them that the average cost of dinners is about half a crown, and that the wine scarcely exceeds half a pint to each dinner.

Some of the club houses rank among the most elegant modern buildings in London. The Carlton, the Reform, the Conservative, and the Army and Navy club-houses are especially noticeable.

Before the first Revolution it was attempted to form political clubs in Paris on the English plan, but they were prohibited by the police. With the meeting of the national assembly, and the outbreak of the Revolution, about 1789, political societies sprang into unwonted activity. These associations mostly assumed the English name, such as the Club des Feuillans and the Jacobin Club; but they had quite a different character; they were popular societies. In them were concentrated the great political parties of the nation, by means of systematic organization and affiliation. The Jacobin Club thus came, in the end, to embrace all France, and to rule it. Similar associations sprang up in Germany, Italy, Spain, and wherever the revolution took any root. In Germany these unions were prohibited in 1793 by a law of the empire; and the prohibition of all political unions and meetings was renewed in 1832 by an act of the Germanic confederation. The suppression of the clubs in France followed the extinction of the revolution, and their place has since been taken by secret societies. After the revolution of 1848, clubs revived in great force in Italy and Germany, after the style of the first French Revolution, but speedily came to an end along with that which had given them birth.

Social clubs of the English type have not spread rapidly on the Continent. In France the name *cercle* was given to clubs of this nature. The most fashionable clubs of Paris are Le Cercle de la rue Royale and the Jockey Club. Many sports besides horse-racing are represented in the club life of the French capital. The automobilists, and the devotees of yachting, fencing, etc., have their separate organizations. There are also cercles for army officers, for literary men, for artists, and one connected with agricultural interests. Alpine clubs (q.v.) are found in many European countries. The French society of that name has numerous branches. Catholic clubs of workingmen exist in different parts of the country.

Although clubs were not unknown in the United States toward the close of the 18th century (the Hoboken Turtle Club dating back to that period), yet their spread and development were slow previous to the Civil War. Among those ante-dating the War may be named, the Union Club of New York (1836), the Somerset Club of Boston (1857), and the Maryland Club of Baltimore (1857). The Union League Club of New York (1863) grew out of the purpose to defend and perpetuate the national integrity, to encourage loyalty to the Federal government. Other Union League clubs were formed later in Philadelphia, and other cities; and in all the important centres of the country there grew up large and flourishing societies of a political or social nature, or such as combined the two features. The Manhattan Club became the chief social Democratic club of New York. The St. Nicholas Club represented a different type, a society founded upon a similarity of ancestry or antecedents and endeavoring to preserve historical associations. As these organizations have increased in number they have become more varied in character, until not only politics, science, art, music, literature, sociology, religion, philanthropy, and professional, commercial, social and sporting life are all represented, but the subdivisions are bewildering and continually increasing. Athletic clubs of various kinds are numerous and popular, abroad as well as in America, especially those for golfers and cyclists. The Cycling Tourists' Club, with headquarters in London, has a membership of 45,000.

University clubs draw together the college-bred men of various sections or cities. The largest one of the kind in the United States is that in New York, which had in 1902, 2,566 members. The city has also a Yale, a Harvard, and a Princeton Club. The Reform Club, organized in 1878, works for good government and agitates the tariff question. Among the largest clubs of the metropolis in addition to those already mentioned are the following: New York Athletic, 2,800 members; New York Yacht, 1,300; Century, 1,172; Army and Navy, 1,200; Metropolitan, 1,040; Players, resident 500, total 1,000; Lotus, resident 600, total 956. Others noteworthy for special characteristics are: The Knickerbocker Club, Author's Club, Press Club, Grolier Club, Catholic Club, Holland Society, etc. The

Chicago Athletic Club has 2,500. In Philadelphia, in addition to the Union League, the Manufacturers' Club, the Art Club, the Rittenhouse, and the New Century, are numerically strong. Clubs devoted to the cultivation of vocal music are largely formed of the German element in our cities. Prominent among these societies are the Liederkranz, the Arion, and the Mendelssohn.

CLUBBING, in cabbages, turnips, and other plants of the genus *Brassica:* diseased growth of tubercular excrescences in the upper part of the root or lower part of the stem, caused by the larvæ of the cabbage fly (q.v.), and of other insects, by which the vigorous growth of the plant is prevented, and crops are often much injured. It is common for gardeners to cut away these excrescences, with their contained larvæ, in planting out young cabbages, etc.; and where they are not so numerous that the injury done by the knife is necessarily great, this plan succeeds very well. Dressings of quicklime, wood-ashes, etc., have been recommended, and appear partially successful in preventing this evil, probably by deterring the parent insect from approaching to lay her eggs; but change of crop, when practicable, is of all things the most commendable. C. is sometimes confounded with anbury (q.v.), from which it is quite distinct.

CLUB'-FOOT [L. *talipes*]: a distortion or twisting of the foot by one or more of its muscles being permanently shortened. It may exist from birth, or occur in early childhood after convulsive fits. Surgeons recognize four varieties of clubfoot: turning inward (*varus*), outward (*valgus*), downward, with elevation of the heel (*equinus*), or upward, with depression of the heel (*calcaneus*).

As age advances, the bones alter in form from the pressure exerted upon them, the ligaments shorten, and the foot becomes rigidly molded in its unnatural position. It cripples the person's movements, and in many instances has proved a great affliction. Lord Byron's whole life seems to have been embittered by one of his feet being inverted.

Although Lorenz, in 1784, cut the tendo Achillis to lower the heel in talipes equinus, yet owing chiefly to the dangers of cutting across tendons, club-foot was practically incurable till 1831, when Dr. Little, of London, having himself a club-foot, after seeking relief from many surgeons at home and abroad, found his way to Dr. Stromeyer, at Erlangen. This ingenious surgeon introduced a narrow-bladed knife, and divided the tendons of the contracted muscles with such a small external wound that scarcely any inflammation resulted. Dr. Little, being cured, published a treatise on the subject, and at the present day no deformity of the foot is considered irremediable. However, it must be remembered that the division of tendons must be followed by judicious manipulations, and generally by the application of some suitable apparatus to prevent the foot returning to its former position. Of such apparatus, Scarpa's shoe, as it is termed, is most frequently in use.

CLUB′-RUSH: see SCIRPUS.

CLUCK, n. *klŭk* [an imitative word: Gael. *gloc;* Dut. *klocken;* Dan. *klukke,* to cluck: Sp. *cloquear*]: the call of a hen to her chickens, or the noise she makes when hatching: V. to call or cry as a hen to her chickens. CLUCK′ING, imp. CLUCKED, pp. *klŭkt.*

CLUE, n. *klô* [see CLEW]: a key to; a guide.

CLUGNY, or CLUNY, *klü-nē′:* town of France, dept. of Saône-et-Loire, 12 m. n.w. of Mâcon, on the left bank of the Grône, an affluent of the Saône. It is noted for its antiquities, chiefly for the famous Benedictine abbey, founded 910, together with the basilica of Notre Dame, built in the 13th c. Clugny reached its highest prosperity in the 12th c., and had 2,000 dependent houses scattered over Europe. Here Bernard de Morlaix composed the poem *De Contemptu Mundi,* which Dr. Neale considered the loveliest of mediæval lyrics; often printed of old, it was forgotten, to be disinterred by Abp. Trench, and universally known and sung (in part) in Neale's noble version. Here popes Gregory VII., Urban II., and Pascal II. were trained, and 10,000 monks sheltered at one time. Here Peter the Venerable gave an asylum to Abelard. The abbey church, consecrated by Innocent II., was 656 ft. long by 130 wide, the largest in Europe before the erection of St. Peter's at Rome. The buildings were much injured by the Huguenots 1562; the monks were expelled 1789, and the basilica plundered, sold, and most of it pulled down 1792. Parts of it have been restored and used for a normal school, while the abbot's palace now holds a library and a museum. Many records were burned, with religious books, by the mob 1793, and the library was again scattered; it was generally supposed that nothing had been spared, but 1829 no less than 225 folio and quarto volumes of charters and MSS. were discovered in the town hall, of which many are preserved in the Bibliothèque Nationale, Paris, and some have found their way to the British Museum. For those relating to England, see Sir G. F. Duckett's *Record-Evidence of Cluni.*

The Hôtel de Cluny in Paris was built as a town-house by an abbot of Cluny about 1480, confiscated 1790, bought by the city 1842, presented to the govt. and used to house the Sommerard archæological collection. A Collège de Cluny founded by Ives de Vergy 1269, no longer exists. Cluny has a considerable agricultural trade, and there are manufactures of pottery, paper, and vinegar.

CLUMP, n. *klŭmp* [Dan. *klump,* a lump, a clump: Icel. *klumbr,* a lump: Dut. *klomp;* Ger. *klumpen,* a clod, a mass]: a short, thick, or shapeless piece of matter; a cluster of trees or shrubs. CLUMPS, n. *klŭmps,* a stupid fellow.

CLUMSY, a. *klŭm′zĭ* [OE. *clomsid,* stiffened with cold: Sw. *klumpig,* clumsy; prov. Sw. *klummsen,* benumbed with cold: Icel. *klumsa,* suffering from cramp (see CLUMP)] awkward and inefficient, like one benumbed with cold; unskilful: slow; heavy; ill-made; ungainly; uncouth. CLUM′-

SILY, ad. *-lĭ*, in a clumsy manner; awkwardly; ungracefully. CLUM'SINESS, n. the quality of being clumsy; awkwardness.

CLUNCH, n. *klŭnsh* [from CLING]: among *miners*, any tough, coarse clay, such as is sometimes found in the coal measures, or in the newer strata. The term has also been applied to the lower and harder beds of the cretaceous rocks, sometimes used for the stone-work of the interior of churches.

CLUNG, v. *klŭng:* see under CLING.

CLUNIAC, n. *klō'nĭ-ăk:* one of a reformed order of monks of the Benedictines, so called from *Clugni*, or *Cluny* in France: the order was founded 909, and at one time its convents numbered more than 2,000. The French assembly suppressed it 1790.

CLUPEIDÆ, *klô-pē'ĭ-dē:* important family of malacopterous (q.v.) fishes, nearly allied to the *Salmonidæ*; and differing from them chiefly in the want of an adipose fin. They all are scaly fishes, but the scales are very easily detached. None of the fins have any spinous rays. The ventral fins are nearly in the middle of the body. The dorsal fin is always solitary. The gill-openings are very large. The teeth are small, and generally numerous. The maxillary bones are composed of three pieces, easily separated. The body is generally elongated, and much compressed; the belly thin and almost reduced to a sharp edge, frequently denticulated by the edges or points of a series of small bones attached to the skin. The air-bladder is always large; the roe consists of a vast number of eggs. The fishes of this family are almost exclusively marine, only a few of them ascending rivers. They generally congregate in shoals, and some of them periodically visit certain coasts in vast multitudes. They are very widely diffused over the world; some of the particular species have a wide geographic range. To this family belong the herring, pilchard, sprat (karvie, kilkie), anchovy, sardine, white-bait, etc. (see these titles). The herring may be regarded as the type of the order of the genus *Clupea*. But the genera most important in an economical point of view have been very differently distinguished by different ichthyologists.

CLUPESOCIDÆ, *klô-pē-sŏs'ĭ-dē:* family of malacopterous fishes, named as exhibiting characters intermediate between those of the *Clupeidæ* (herring, etc.) and of the *Esocidæ* (pike, etc.). Some of them are marine, and some are fresh-water fishes. They are mostly tropical. To this family belongs the interesting genus *Arapaima* (q.v.), and the genera *Heterotis* and *Butirinus*, containing fishes of very curious structure and appearance, highly prized for the table.

CLURE, n. *klôr:* in *Scot.*, a bump or dint that has arisen from a blow; an indentation or defacement.

CLUSIA, *klō'zĭ-a* [named in honor of the great botanist L'Ecluse or Clusius]: genus of tropical trees and shrubs of

the nat. ord. *Guttiferæ* (q.v.) or *Clusiaceæ*, some of which are commonly called Balsam trees, from their resinous or balsamic products. They are very often *epiphytes*, growing on larger trees, over the bark of which their roots spread in search of chinks or decayed parts where they may obtain nourishment, and if it cannot be obtained in sufficient quantity, a root is sometimes sent straight down to the ground, and in due time becomes a kind of stem. The fruit is peculiar, a subglobular capsule, with a number

Clusia Rosea:

1, an expanded flower; 2, a calyx seen from below; 3, the ovary, with a part of the calyx cut away; 4, a transverse section of a fruit.

of cells, opening as by meridian lines from top to base. C. *rosea*, a native of the W. Indies and tropical parts of America, yields an abundant resin, used as an external application in veterinary medicine, and for covering boats instead of pitch. A great quantity of resin exudes from the disk of the flowers of *C. insignis*, the WAX-FLOWER of Demerara, which is used to make a gently stimulating and soothing plaster. This is one of the productions of Demerara, to which the colonists, in preparation for the 'Great Exhibition' (of 1862), sought to draw general attention.

CLUSIUM: see CHIUSI.

CLUSONE, *klô·so'nā:* town of Lombardy, n. Italy, near the left bank of the Serio, 17 m. n.e. of Bergamo. It

has manufactures of linen, a trade in corn and iron, and in the neighborhood are vitriol works and copper foundries. Pop, 3,000.

CLUSTER, n. *klŭs'tėr* [Dut. *klissen*, to stick together; *klister*, paste, also a cluster: Icel. *klaster*, an entanglement, a bunch]: a bunch; a number of things of the same kind growing or grouped together, as a *cluster* of raisins, a *cluster* of bees: V. to unite or grow in a bunch or bunches; to collect into a flock, crowd, or close body. CLUS'TERING, imp. forming clusters. CLUS'TERED, pp. *-tėrd*, collected in clusters. CLUS'TERINGLY, ad. *-lĭ*. CLUS'TERY, a. *-tėr-ĭ*, growing in clusters. CLUSTER-CUPS, small fungi parasitic on leaves.

CLUS'TERED COL'UMNS, or COMPOUND PIERS: one of the richest features in Gothic ecclesiastical architecture. The columns or shafts are sometimes attached to each other through their whole length, sometimes only at the base and capital. When surrounded by floriated fillets, they have been very aptly compared by Sir Walter Scott to 'bundles of lances that garlands have bound.'

CLUTCH, n. *klŭch* [Scot. *cleik*, to snatch; *cluik*, an instrument for seizing: Swiss, *klupe*, claws: Gael. *glac*, to seize or grasp]: a grasping with the hands eagerly or greedily; a firm grasp or griping with the hands by tightening the fingers; a seizure; a grasp: V. to seize firmly with the hand; to grip; to grasp with the hands eagerly or greedily. CLUTCH'ING, imp. CLUTCHED, pp. *klŭcht*. CLUTCHES, n. plu. *klŭch'ĭz*, claws; hands, in the sense of rapacity and cruelty. IN THE CLUTCHES, in the power of, in a bad sense.

CLUTTER, n. *klŭt'tėr* [another form of *clatter*]: a rattling noise; a bustle: V. to make a confused noise. CLUT'TERING, imp. CLUT'TERED, pp. *-tėrd*.

CLWYD, *klwėd:* river of n. Wales; rises in the Bronbanog Hills, in the s.w. of Denbighshire, and runs 30 m., first s., then e.n.e., and lastly s., through Denbigh and Flint shires, past Ruthin, St. Asaph, and Rhuddlan, into the Irish Sea. Below Ruthin, and between barren hills, lies the fertile, populous, and level vale of the C., 15 m. long by five to seven wide. At St. Asaph the C. receives the Elwy, 20 m. long, from the w. and increases much in size. It then enters the fertile and extensive marsh of Rhuddlan, and falls into the sea by a small estuary. It is navigable for vessels of 70 tons up to Rhuddlan, two m. from its mouth.

CLYDE, *klīd:* river in the s. of Scotland, the only great British river, besides the Severn, flowing w. Commercially it is the most important river in Scotland, and the romantic beauty of its scenery is widely celebrated. It rises by several large streams in the semicircular range of the Lead, Lowther, and Moffat Hills, and drains the shires of Lanark, Renfrew, and Dumbarton. The main and southmost source, the Daer, runs n., and receives the Powtrail, the Clyde (a smaller stream, after junction with which, the main stream is called the C.), and other streams, preserving

its mountain character to Roberton. More than 20 m. below the source of the Daer. The C. then bends round Tinto Hill toward Biggar,* whence it flows n.w.w. and s.w. to about four m. above Lanark, thence persuing a n.w. course through Lanarkshire, and between Dumbarton and Renfrew shires, past Lanark, Hamilton, Glasgow, Renfrew, and Dumbarton, near which town it opens into the Firth of Clyde. In this course it receives a number of streams, and flows through a rich, fertile, wooded valley, often extending into level plains, and often with bold wooded banks. From two m. above to four m. below Lanark occur the celebrated Falls of the C., a series of cascades and rapids, the largest in Scotland for quantity of water—the total descent, in the course of six m. being 230 ft. over old red sandstone rocks, amid very picturesque scenery. Three of the falls are above, and one below Lanark. Bonniton Linn, two miles above Lanark, is a cascade of 30 ft. with some parts only four ft. broad. Corra Linn, half a mile below the last, is the grandest fall, forming three distinct leaps—in all, 84 ft. high. Dundaf Fall is 10 ft. high. Stonebyres Linn, two m. below Corra Linn, forms three distinct falls—in all 70 ft. Below Glasgow, the C. expands into an estuary, navigable by the largest vessels, and at Greenock it attains a breadth of about four m. Opposite this point it communicates with the Gareloch, and a little below with Loch Long on the n. Its course, which from Glasgow has been w.n.w., now turns suddenly s., in which direction inclining a little to the w., it continues between Argyle and Bute, and Cantire on the w., and Renfrew and Ayr shires on the east, until it becomes identified with the North Channel at Ailsa Craig, where its breadth is about 30 m. The C. from its source to Glasgow is, by its windings, 75 m. long, and from Glasgow to the south end of Cantire, 48 m. Its basin occupies 1,500 sq. m., and consists of carboniferous strata and trap rocks, the latter chiefly forming the bordering mountains. Floods sometimes raise its waters 20 ft., and it has changed its course at Renfrew, which was anciently close to it. Clydesdale, or the valley of the C., is noted for its coal and iron mines, orchards, and horses. Bell, in 1812, launched on the C. the first boat in Europe successfully propelled by steam.

CLYMENIA, n. *klī-mē'nĭ-ă* [L. *Clymĕnē*, a sea nymph]: in *geol.*, a genus of nautiloid shells.

CLYMER, *klī'mĕr*, GEORGE: 1739–1813, Jan. 23; b. Philadelphia: a signer of the Declaration of Independence. Orphaned at the age of seven, he was brought up to business by an uncle, whose fortune he inherited. He became prominent at the 'tea-meeting,' 1773, Oct. 16, was a member of the council of safety and one of the first continental treasurers, exchanged his specie for paper, was elected to the continental congress, 1776–77 and 1780, and served on numerous committees and commissions relating

* In very high floods, the waters of the Clyde sometimes overflow in the boggy ground there, and a portion runs into the Biggar Water, and so into the Tweed.

to the war. His house in Chester co. was sacked by the British 1777. He was a member of the Penn. legislature, 1784, of the convention which framed the federal constitution, and of the first U S. congress 1788–90, collector of the duty on spirits 1791 (which led to the whisky riots in Penn.), and a negotiator of the treaty with the Creeks and Cherokees 1796. After this he withdrew from public life. He was an organizer of the Bank of N. America 1780, pres. of the Penn. Bank and of the Acad. of Fine Arts. and founder of the Penn. Agricultural Soc. He died at Morrisville, Bucks co., Pennsylvania.

CLYPEATE, a. *klĭp'ē-āt* [L. *clypĕus*, a shield]: in *bot.*, having the shape of a shield; also CLYPEIFORM, a. *klĭp'-ĕ-ĭ-fawrm* [L. *forma*, shape].

CLYSTER, n. *klĭs'tĕr*, also ENEMA [F. *clystère*—from L. *clyster*, that which washes out—from Gr. *klustēr*—fr. Gr. *kluzo*, I wash or rinse]: an injection into the bowels; medicine administered in the liquid form by the rectum, or lower end of the intestine. It is used either for the purpose of procuring evacuation of the bowels, or of conveying stimulating or nourishing substances into the system. For the latter purpose wine and beef-tea, or milk, in quantities of a few ounces at a time, are employed; for the former, simple warm or cold water in sufficiently large quantity to distend the bowels, and produce evacuation; or in special cases, various cathartics may be used in addition, such as colocynths, aloes, castor oil, or turpentine made into an emulsion with yolk of egg, and sometimes carminatives, to expel air. Narcotic clysters are also employed, but should be used only under medical superintendence. An injecting syringe, with a flexible tube and a double-action valve, is usually employed in the administration of this remedy.

CLYTEMNESTRA, *klĭt-ĕm-nĕs'tra*, in Homeric Legend: daughter of King Tyndareus and of Leda, and twin sister of Helena. She became the wife of Agamemnon, and bore him a son, Orestes, and two daughters, Iphigenia and Electra. During the absence of Agamemnon, on his expedition to Troy, she formed a connection with Ægisthus. murdered her husband on his return, and reigned for seven years with Ægisthus, till she was murdered by her own son, Orestes.

CLYTIE, *klĭt'ĭ-e:* nymph of classic mythology, daughter of Oceanus and Tethys. She was in love with Apollo, who deserted her for Leucothe. Failing to regain his affection she pined away, and was changed to a sunflower, which was supposed to turn its head to follow the sun in his course—Apollo being the sun-god.

CNIDÆ, n. plu. *nī'dē* [Gr. *knidē*, a nettle, because it stings —from *knaō*, I excite itching]: the urticating cells, or thread-cells, which give many of the cœlenterata power to sting.

CNIDUS, or GNIDOS, *nī'dŭs:* city on the promontory of Triopion (now Cape Krio), in Caria. Asia Minor; a Lace-

dæmonian colony, one of the six cities of the Doric league. Cnidus (according to Strabo) had two ports, one of which could be closed. In front of what was the town lies a lofty island, about six hundred yards long, connected with the mainland by a causeway (now a sandy isthmus). The s. port was formed by two moles, carried into the sea to the depth of nearly 100 ft., one of which is nearly perfect at the present day. The city was famous for several temples of Venus, then sometimes called the Cnidian goddess. One of these temples contained the famous statue of the naked Venus by Praxiteles. It was of Parian marble, and so beautiful that Nicomedes, king of Bithynia, offered, in return for this master-piece of Grecian sculpture, to pay the entire debt of the city, which was very large. The Cnidians, in the excess of their devotion to art, refused. During the wars in ancient times, Cnidus was often mercilessly plundered. The site of the city is 'covered with ruins.'

CNOSSUS, or Gnossus, *nos'sus:* chief city and traditional cap. of Crete; on the Cæratus, three m. from the n. coast; lat. 35° 20′ n., long. 25° 10′ e. First settled by Dorians, it retained their customs and institutions. According to mythology, it was built by King Minos; Zeus was born and married in the neighborhood; Dædalus here constructed the labyrinth where the Minotaur was confined, whence Dædalus himself escaped on wings of his own fabrication, and Ariadne was delivered by Theseus. Cnossus was mentioned by Homer as a great city; it dominated the island till Gortyna and Cydonia grew into power, and always had a large share in the intestine wars. It fell under Roman dominion with the rest of Crete. Ænesidemus the skeptic, and Chersiphron, the architect of the temple of Diana at Ephesus, were born at Cnossus. Only portions of its wall remain; the modern village is called Makro Teikho.

CO, *kō* [L. *cum;* Gr. *sun,* with, together: It. *con*]: a form of the prefix *con,* and means, with; together; together with; *co* is used before a vowel and *h,* as *co*alesce, *co*habit, and when the word begins with an *o,* it is separated by a hyphen, or the second *o* takes a diæresis as *co*-operate, *co*-ördinate; in math., *co* is an abbreviation of *complement,* as *co*-latitude, *co*-sine, *co*-tangent. *Note.*—The prefix *con* assumes the various forms of *co, cog, col, com, cor,* according to the first letter of the second element of the compound; thus, 1. *con* becomes *com* before *b* and *p,* as *com*bustion, *com*pel; 2. *con* becomes *col* before *l,* as *col*loquy; *con* becomes *cor* before *r,* as *cor*respond.

COACH, n. *kōch* [F. *coucher,* to lie down: Dut. *koetsen,* to lie, to put to bed: Dut. *koetse,* a couch, a coach]: a close four-wheeled carriage having a front and back seat; v. to travel in a coach. Coach'ing, imp. Coached, pp. *kōcht.* Coach-box, the seat on which the driver sits. Coach'ful, n. *-fûl,* enough to fill a coach. Coachman, n. the driver of a coach. *Note.*—Skeat suggests F. *coche,* a large boat, a

coach—from L. *concha*, a conch-shell, in *mid. L.*, a little boat, as the etymon of *coach*.

COACH, v. *kōch* [familiar slang in the sense of driving and forcing]: to prepare for an examination by cramming: n. a special tutor who assists in preparing for examinations. COACH'ING, imp.: N. the cramming for an examination. COACHED, pp. *kōcht*.

COACH: general name for an inclosed vehicle drawn by horses, designed for the conveyance of passengers, as distinguished from a wagon or cart, for the conveyance of goods. The invention of such vehicles has been claimed by Hungary, England, France, Spain, and Germany. The earliest record found by Beckmann relates to about the year 1280, when Charles of Anjou entered Naples, and his queen rode in a *caretta*—apparently a small but highly decorated car, from which the modern *charet* or *chariot* was derived, as well as other vehicles named *chares* and *chariettes*. It is believed that most of these cars had broad wheels, the only form suited for the wretched roads of those ages; and it is certain that all those of early date were open overhead. Many of the coaches used by the continental princes and nobles in the 16th c. were closed only to this extent—that they had canopies supported by ornamental pillars, and curtains of cloth, silk, or leather, which could be drawn easily aside. A *glass* coach, or coach with glass windows, is specially mentioned as being used by an infanta of Spain, 1631. The traces of the coaches were at first made of rope; those belonging to the highest personages only were made of leather. It is believed to have been in the time of Louis XIV. that coaches were first suspended by leathern straps for ease of motion.

The first coach ever seen in England is said to haye been one made in 1555 by Walter Rippon for the Earl of Rutland; and in 1564, the same builder made a showy vehicle for Queen Elizabeth. Later in the reign the royal carriages had sliding panels, so that the queen could show herself to her loving subjects whenever she desired. During the closing years of Elizabeth's reign, and early in the 17th c., the use of pleasure carriages extended rapidly in England. The coaches had first to struggle against the opposition of the boatmen on the rivers, and then against that of the sedan owners and bearers; but they gradually came into very general use. By successive steps the coaches of those days gave way to the elegant vehicles of the present.

The following are some of the chief kinds of pleasure-carriages. The *Dennet* is a two-wheeled vehicle for one horse, with a jointed hood or head covered with leather, and a driving-box. The *Stanhope* bears some resemblance to the dennet. The *Tilbury* is in like manner a two-wheeled vehicle for one horse; but it has pliable leathern braces between the springs and the body of the vehicle, together with suspension brackets. The *Cabriolet* belongs to the same class as the tilbury. The name *Cab* is an abbrieviation of cabriolet, but it has come to be applied to a

four-wheeled vehicle. The *Curricle* is a two-wheeled vehicle for two horses; there are no shafts; but a pole, fixed to a frame which supports the body, passes between the horses, and is suspended from a metal bar resting on their backs. The *Phaeton* is a four-wheeled vehicle which may be drawn either by one or two horses; its front body is somewhat like that of a dennet or stanhope, and behind this is an open seat, supported on a kind of large box. The *Coach* is a closed four-wheeled vehicle for two or more horses, with at least two seats inside, and a skilful arrangement of springs for ease of motion. The *Chariot*, or chaise of modern days, usually differs from the coach in having only one seat. The *Landau* is a coach made with movable top, to be opened occasionally. The *Barouche* is permanently open, with only a leathern hood or head over the rear part. The *Britzska* is a kind of small barouche. The *Brougham* is a miniature coach usually for two persons, but in which four may be accommodated; and the *Clarence*, a pair-horse carriage with movable glazed panels and hood, and for two or more persons.

The manufacture of carriages, whether pleasure vehicles or omnibuses, ranks in the highest class of mechanical labor. There is a necessity for the best materials and the best workmanship, since, owing to the severe strains and jerks to which the vehicles are subject, cheap construction is in the end unprofitable. Many kinds of wood are employed in the construction. The body of the coach is made by one set of workmen, the under-framing by another, the former partaking more than the latter of the nature of cabinet work. The steel-spring making is delicate work, owing to the necessity for combining strength with lightness and elasticity; and the various pieces of iron work require careful adjustment, especially the axles. The covering of the upper part of the body of a coach with leather is one of the most difficult parts of the manufacture; one single hide is employed, the leather being worked round the corners by repeated currying while wet; and all must be rendered smooth, without even a puncture. The best coaches receive as many as 20 to 30 coats of oil paint; and the polishing processes are numerous and carefully conducted. The carving, gilding, herald-painting, lace and fringe work, metal ornamentation, etc.—all are among the best examples of their respective handicrafts.

English carriages have long been considered the best in the world for their combined strength and beauty. In recent years the United States stands in the first rank for carriage-making, except in such special types as the 'tally-ho,' built on English models.

COACH-DOG, or DALMATIAN DOG: variety of dog apparently allied to the hounds, though said to be deficient both in keeness of scent and in sagacity. It is often kept in stables, becomes attached to the horses, and runs after carriages. Its general light color and numerous dark brown or black spots are constant characteristics; as are also its short hair, tail destitute of brush, and inoffensive disposi-

tion. Its origin is uncertain; the name Dalmatian is probably altogether misleading; and it is supposed that it may have been brought from India, where a very similar kind of dog exists.

COACHING: the art of driving a fancy coach or drag drawn by four or more blooded horses; also the act of being so driven; a society diversion patterned after the old English mail and passenger stage coach whose usefulness ceased wth the multiplication of railroads. Coaching was revived by a number of wealthy gentlemen-drivers in New York, 1875, as a species of high-toned sport, and their example was quickly followed elsewhere. Tally-ho and coaching clubs preserve many of the ancient forms and customs—the coats of special colors for drivers and guards, the straight horn, etc.—make annual parades in their respective cities and at fashionable summer resorts; form a conspicuous feature of all great turf events; and frequently make long journeys, such as from New York to Philadelphia and return, taking relays of fresh horses stationed by their owners at convenient distances along the route, and the owner of the drag taking turns with his guests in driving. When on parade or at the races the roofs are graced with the presence of ladies. The quickest coaching pace recorded is 9 m. in 35 minutes.

COACH WHIP SNAKE: *Psammophis flagelliformis*, a species of the genus *Masticophis*. It is found in S. C., Ga., and Fla., attains a length of five ft. or more, has a narrow head and body, and is black, brown, and slate-colored. It is named from the tail, which tapers like a whip-cord, with imbricated scales. It moves swiftly, lives on young birds and small animals, is not poisonous, but will twine round its foe when attacked.

COACT, v. *cō-ăkt'* [L. *coactus*, driven or brought together—from *con*, together; *actus*, driven or impelled]: to act in concert; to act in union. COACT'ING, imp. COACT'ED, pp. driven or compelled. COACTION, n. *kō-ăk'shŭn*, compulsion; force restraining or impelling. COACTIVE, a. *kō-ăk'tĭv*, acting in concert; compelling.

COAD, *kōd*, JOHN: English carpenter who joined the Duke of Monmouth in the rebellion of 1685, was severely wounded at Philips Norten, tried by Lord Jeffreys for treason, and exiled to Jamaica. He wrote *A Memorandum of the wonderful Providences of God to a poor unworthy Creature (from the 12th of June, 1685, unto the 24th of November, 1690), in and after the Revolution between the Duke of Monmouth and King James*, which Lord Macaulay in his *History of England* pronounced the best account of the sufferings of those rebels who were sentenced to transportation.

COADJUTOR, n. *kō'ăd-jōō'tėr* [L. *con*, together; *adjūtor*, a helper, an assistant—from *ad*, to; *jutus*, assisted]: one who helps another; an assistant; technically, in ecclesiastical law, one appointed to assist a bishop, whom age or infirmity has disabled in whole or in part: see EXECUTOR.

Co'adju'torship, n. joint assistance. Co'adju'trix, n. fem. *-jô-trĭks*, a female assistant.

COADUNATE, a. *kō-ăd'ū-nāt* [L. *con*, together; *adūnārĕ*, to unite—from *ad*, to; *ūnŭs*, one]: in *bot.*, united at the base; cohering.

COAGULATE, v. *kō-ăg'ū-lāt* [F. *coaguler*, to curdle—from L. *coagulārĕ*, to curdle; *coagulātus*, curdled]: to curdle; to congeal; to change a fluid into a solid or semi-solid mass; to thicken or turn into clots: Adj. thickened; curdled. Coag'ulating, imp. Coag'ulated, pp. Coag'ulator, n. that which causes coagulation. Coag'ulant, n. that which. Coag'ula'tion, n. *-lā'shŭn* [F.—L.], the act of changing from a fluid to a fixed state. Coag'ulable, a. *-lă-bl*, that may be thickened. Coag'ulabil'ity, n. *bĭl'ĭ-tĭ*, the capacity of being thickened or coagulated. Coag'ulative, a. *-lā-tiv*, having power to coagulate. Coagulum, n. *kō-ăg'ū-lŭm* [L], clot of blood; the curd of milk; a thickened or fixed mass of liquid.

COAGULA'TION: the amorphous (q.v.) solidification of a liquid, or part of a liquid, as when the caseine of milk is solidified by rennet in making cheese (q.v.), or the white of an egg by boiling. The process varies in various substances. Albumen, or the white of an egg, coagulates at a temperature of 160°. Milk is coagulated or curdled by the action of rennet or by acids. The fibrin in the blood, chyle, and lymph of animals is coagulated by the separation of these fluids from the living body: see Blood.

COAHUILA, *ko-â-wē'lâ:* Mexico, a state bounded on the north by the United States, on the east by Nuevo Leon, on the south by San Luis Potosi and Zacatecas, and on the southwest, west, and northwest by Durango and Chihuahua. Its area is about 60,000 square miles. The capital is Saltillo. The principal mountain ranges are in the districts of Rio Grande and Monclova. Besides these we may mention the Sierra Madre, in the Saltillo district; the Sierra Paila, in Parras; and Sierra Noas, in Viesca. The rivers are: Rio Grande (also called Rio Bravo), forming the boundary line with Texas; the Sabinas, forming the boundary between the districts of Monclova and Rio Grande; the Alamos, Monclova, Patos, Saltillo, Aguanaval, Nazas, and their tributaries. The principal lagoons are those in the districts of Parras, Viesca, and Monclova. Extending from the foot of the mountains northward are sterile plains, where the heat is intense; to the southeast lies the Laguna region, fertile and temperate; the mountainous district, rich in minerals, has frequent frosts. In general the climate is not healthful, the most common diseases being malarial fevers, typhus, rheumatism, and affections of the respiratory and digestive organs. Mining has recently become one of the chief industries. Silver, lead, coal, iron, copper, and gold are found. The first position, however, is still held by agriculture. Cotton, corn, wheat, sugar-cane, etc., grow readily; and grape-culture is attracting special attention.

The grapes of Parras are considered by some experts equal if not superior to the Malaga and Granada varieties. Cattle-breeding is carried on quite extensively. The export trade is principally with the United States, to which, among other products, are brought ixtle and its various manufactures. The commerce of Coahuila is in the hands of Americans, Spaniards, Germans, and Frenchmen; its total trade is of the estimated value of $11,000,000, or 12,000,000, silver, per annum. Manufactures are: cotton and knitted goods, wines, tanned skins and hides, soap, candles, cheese, shoes, molasses, furniture, pottery, carriages, wagons, and chocolate. The railroad system includes a number of important lines. There are good wagon roads; also telegraph and telephone service and an efficient mail-service. The state is divided into five districts, subdivided into 33 municipalities. Pop. 285,000.

COAL, n. *kōl* [AS. *col*; Icel. *kol*; O. H. G. *chol;* Ger. *kohle;* D. *kool;* Skr. *jval*, to burn]: wood completely charred; charcoal; a brown or black, more or less compact mineral substance, chiefly carbon, useful as fuel: V. to burn wood to charcoal; to take in coal for the supply of a steam vessel, locomotive, etc. COALING, imp., taking in of coals. COALED, pp. *kōld*. COALY, a. *-ĭ*, like coal; containing coal. COAL-BLACK, black like coal. COAL BREAKER, a building containing machinery for crushing and assorting coal. COAL-FIELDS, a natural deposit or bed of coal in the earth. COAL GAS, a hydrocarbon gas, obtained from bituminous coal and used for heating and lighting. COAL-HEAVER, *-hev'er*, one who carries coal into a cellar, ship, etc.; a coal-porter. COLLIER, n. *köl'yer*, one who digs out the coal in a coal mine; a ship employed in carrying coal. COAL-MEASURES, n. plu. *-mĕzh-ûrs*, the strata or geological formation in which the deposits are found. Chiefly the Carboniferous System (q.v.). COAL MINES, COAL PIT or COLLIERY, a place out of which coal is dug. COAL-OIL, petroleum, a common name for mineral oils obtained chiefly from coal and carbonaceous shales. 'To carry coals to Newcastle,' to do something very unnecessary; to lose one's labor. 'To haul over the coals,' to call to account; to censure—in allusion to a former method of torture to extract a confession or money from a victim.

COAL: a noncrystallized substance consisting of solid hydrocarbons derived from vegetation, found in beds or veins, and used for fuel. In the sense of a piece of fuel, burning or not, the word is common to all Gothic languages and may have been derived from the Lat. *caleo*, to be hot. Now it is used chiefly to mean the mineral material used as fuel (German Steinkohle, Fr. Charbon de terre).

Coal having been formed from vegetable matters has a composition varying as the volatile constituents are lost. Beginning with woody material, which consists chiefly of carbon, hydrogen, oxygen and a little nitrogen and sulphur, and following the loss through four steps, we come to anthracite—that variety of coal which in composition and structure is farthest removed from wood.

The table shows the per cent. of these elements in wood, peat, lignite, bituminous coal and anthracite:

	C.	H.	O. & N.	S.
Wood	50	6	43	1.0
Peat	59	6	33	2.0
Lignite	69	5.2	25	.8
Bituminous C	82	5	12.2	.8
Anthracite	95	2.5	2.5	...

While carbon, hydrogen, oxygen, nitrogen and sulphur are the chief constituents, there are present as impurities, or ash forming substances, sodium, potassium, iron, lime, silica and clay.

When coals are analyzed, fixed carbon, gas, water, sulphur and ash are the combinations sought. The carbon and gases are valuable constituents; the water, sulphur and ash are deleterious or undesirable.

The structure and other physical characteristics of coal are best ascertained by consideration of the different varieties.

1. PEAT. This is the variety most closely related in all its characteristics to wood. It is a loose to compact, felt-like aggregate of swamp moss, reeds, grass, shrubs, and tree trunks; light brown in color; soft (hardness = .2—1.5); light (specific gravity = 1.05).

It covers great tracts of moist ground in northern countries. For example 4.6 per cent. of Germany, 10 per cent. of Ireland, and considerable portions of the northern States in the U. S. and Canada are occupied by peat swamps. It is called 'the poor man's fuel' since it is dug from swamp land for local use without the necessity of large investment of capital. It is a slow burning fuel of low heat value.

2. LIGNITE is the next step in transformation of vegetation to mineral coal. It contains approximately 70 per cent. carbon and 25 per cent. oxygen. It is more compact or earthy than peat; has an earthy, woody or slightly conchoidal fracture; is 1 to 2 in hardness and 1.2 to 1.4 in specific gravity; is brown to black in color and yields a brown powder when pulverized. It dissolves in warm potassium hydrate, leaving from 25 to 95 per cent. insoluble material and coloring; the solution brown. It burns easily with a sooty flame and unpleasant odor. It neither fuses nor cokes in a closed vessel. It is found in the younger stratified rocks and is a comparatively recent coal. The following are some of the chief kinds: *Woody lignite* exhibits plainly original fibers, trunks, branches, roots, pine tree cones and spores. In a Siebengebirgen lignite mine upright trees with roots and branches are found in position. *Leaf lignite* is composed largely of leaves whose outline is still well preserved. *Bog coal* is a lignite with even fracture, much water and earthly material. It readily decomposes when exposed to the air.

Lignite is a source of gas, paraffin, petroleum, benzine, carbolic acid, vinegar, etc. It is the most abundant fuel throughout large portions of the western United States.

3. Bituminous or Soft Coal contains from 80 to 90 per cent. of carbon and 10 to 15 per cent. of hydrogen, oxygen and nitrogen. It is often shaly or fibrous in texture but usually compact and breaks with a conchoidal fracture. It is harder (2–2.5) and heavier (1.2–1.5) than lignite, is black though its powder is brown, and it has a luster which varies between vitreous and earthy. Unlike lignite when dissolved in potassium hydrate it does not color the solution brown. The vegetable texture of the coal may be distinguished by bleaching it in nitric acid and potassium chlorate and then washing in alcohol. Bituminous coal burns with a long yellow flame.

There are seven kinds ordinarily mentioned. *Fat* or *coking coal*, rich in bitumen, softens while it burns. *Lean* or *caking coal*, poor in bitumen, retains its shape. If its luster is bright it is called 'cherry coal' (Sp. G. 1.3); if dull, 'splint coal.' Splint is harder than cherry, heavier (Sp. G. 1.4) and slaty. *Pitch coal* is pitch black in color, has coarse conchoidal fracture with lustrous faces and is often found at place of contact of an igneous rock, like basalt, with a lignite bed. It is not brittle like the satiny black *glance coal*. Jet beads, bracelets and buttons for mourning costumes are often made of pitch coal. A kind of bituminous coal much prized for use in open grates is called *cannel* coal, since it burns with a bright flame like a candle, and *parrot coal* in Scotland, because of the cracking or chattering noise which it often makes while burning. It is compact and usually dull in color. Dense varieties are often employed for boxes, ink wells, buttons, chandeliers. Its chief use, as also that of the soft, sectile, dark brown *bog head* coal, is in gas and paraffin manufacture. One ton of cannel coal furnishes from 8,000 to 15,000 cubic feet of gas. *Semi-bituminous* coal is the connecting link between bituminous and anthracite.

The foregoing seven kinds include the chief bituminous coals, although about 40 varieties are named in the trade. This coal occurs in the older geological formation (carboniferous) extending over many hundreds of square miles, in one or many beds or in lenticular masses. Because of its excellent qualities and abundance it is the best fuel known to man. It is the chief source of coke so useful in iron manufacture, furnishes gas by dry distillation, and tar from which is obtained benzole and a long series of oils and their derivatives.

4 Anthracite or Hard Coal contains upwards of 90 per cent. of carbon and very small amounts of hydrogen and oxygen. It is heavier than other coals (Sp. G. = 1.7) but though called hard coal its hardness (H. = 2.5) is practically the same as that of soft coal. The seeming difference is due to the marked conchoidal fracture, brittleness and absence of cleavage in anthracite. Bituminous coal usually shows stratification and cleavage so pronounced as to make it appear to be softer than it in reality is. Anthracite is black to grayish in color, bright in luster and easily tarnished. It is soluble in potassium hy-

drate without coloring the solution brown. Plant cells can sometimes be observed in the ashes and in microscopic slides. It burns with a weak flame but does not fuse. To ignite a single piece of anthracite is almost impossible and because of the difficulty of lighting the coal it was not considered of value for sometime after its discovery. In 1800, Wm. Morris, the banker, philanthropist and patriot, was unable to sell anthracite in Philadelphia. Now it is the most prized of the coals on account of its steady intense heat and small smoke. It furnishes an ideal fuel and those cities which depend upon it most largely are the cleanest. Unfortunately it is not widely distributed. It occurs in beds, lenses and veins in old sedimentary rocks and crystalline schists.

That coal is formed from organic matter—chiefly vegetable—can be established in three ways. First, it can be manufactured in the laboratory from wood; second, it has been made in nature within the period of modern history, and third, its composition and structure show its vegetable origin. To manufacture coal heat wood in a test tube. Moisture is given off in a white cloud of steam. After the steam has disappeared and the moisture is gone, hydrogen and oxygen are dissociated and lignite is formed. The tube is closed and heating continued till gas (carburetted hydrogen) is formed and can be ignited by applying a lighted match. Next tar collects near the mouth of the tube. Then bituminous coal is formed. Finally by prolonged heating out of exposure to air hydrogen, sulphur and oxygen are driven away and anthracite coal results.

Coal is being slowly formed where wood, buried and protected from oxidation, is losing its less stable constituents. Such is the case in peat swamps, in abandoned mines, etc. Timbers in the abandoned Dorothea mine, Clausthal, Harz Mts., which have stood under water for 500 years, upon draining of the mine were found turned to lignite.

As to the light which the coal itself furnishes concerning its origin it may be noted that more than 500 species of plants have been found in it. They are, algæ (6 species); ferns (250 species); lycopods, i.e., club mosses, whose powder is used for fire works, medicine, etc. (83 species); equisites, i.e., rushes, horsetails (13 species); sigillarids, whose trunks were ribbed and scarred and which resemble giant cacti (60 species); noggerathia, which had overlapping scales on their trunks and were pinnately leaved (12 species); asterophyllites, belonging to the horsetail family (44 species); and cycads, the sago palm, etc. (3 species). All of these, constituting five-sixths of the whole, are acotyledons or the lowest forms of vegetable life The remaining one-sixth, were dicotyledons, represented by 15 species of conifers-pine trees, etc., and monocotyledons represented by 15 species of palms. All of the species above enumerated are most nearly analogous to those now living in the tropics and are such as would require a moist climate.

In many mines tree stumps are still in position. In one mine (Parkfield) 73 tree stumps, roots and branches were found.

It thus is evident that the materials which furnished the coal are vegetable. The manner of their accumulation is not so clear. Wood from forests would oxidize unless covered. Some peat swamps furnish the best surroundings for coal formation; first, because they afford to the material brought to them by floods or growing in them, protection from oxidation. Second, because they furnish the best condition for growth. The materials in them grow from the bottom, from the top, from all points. Such a swamp becoming submerged and then buried under clay and sand is compressed. When the mud and sand accumulate sufficiently another peat swamp may form only to undergo the same submergence. Thus several layers of coaly material are formed. Subsequent deep burial, great pressure and final elevation produce a coal-field. Swamps along a sea coast could furnish a favorable locality.

Cross sections of coal-fields in all parts of the country are consistent with such a history. Typically at the bottom occurs a conglomerate such as would form on a new shore line. This is covered by sandstone which indicates long action of the waves and gradual decrease in their severity. Next above is shale and then clay, 'fire clay,' such as would be formed in shallow waters, like ponds into which sluggish streams carry silt. Then comes coal from a few inches to several feet in thickness, such as might be formed in a peat swamp. It is usually called coal No. 1. This is covered by grey shale showing subsidence of the swamp and burial under mud. Further subsidence brought conditions favorable to formation of sandstone. Re-elevation introduced other shale and fire-clay formations which in their turn were followed by a swamp in which coal No. 2 was formed. This swinging of the shore line was repeated many times in some localities, as is indicated not only by the different coal seams but also by their containing rocks.

Molluscs, fishes and amphibians buried in these deposits and changed to stone give further light upon their history.

Coal is found in five geological systems—middle Tertiary, upper Cretaceous, lower Jurassic (Oolite), Triassic and Carboniferous. Of these the Carboniferous dwarfs all other in comparison.

In America there are seven extensive coal regions. The first is that found in Acadia, Nova Scotia, New Brunswick and Rhode Island. The coal measures of Nova Scotia are 7,000 feet thick and contain 76 seams. In Rhode Island and Massachusetts a graphitic anthracite is found

The second region, covering 70,000 sq. m. along the Appalachians, includes the famous coal-fields of Pennsylvania, Ohio, Maryland, Virginia, W. Virginia, Kentucky, Tennessee and Alabama. In some portions of this field the coal measures are 4,000 feet thick. From no region

of the world has more or better anthracite and bituminous coal been obtained.

The third field occupies about 7,000 sq. m. in Michigan where the productive carboniferous is but about 300 ft. thick. Indiana and Illinois with approximately 1,000 ft. of carboniferous strata covering 58,000 sq. m. comprise the fourth field—one of the most actively worked and most remunerative.

At one time continuous with this was that which now constitutes the fifth field, covering 94,000 sq. m. It is found in Iowa, Missouri, Arkansas, Kansas and Texas. Here the carboniferous rocks are thicker than in any other portion of America, but not for that reason more promising.

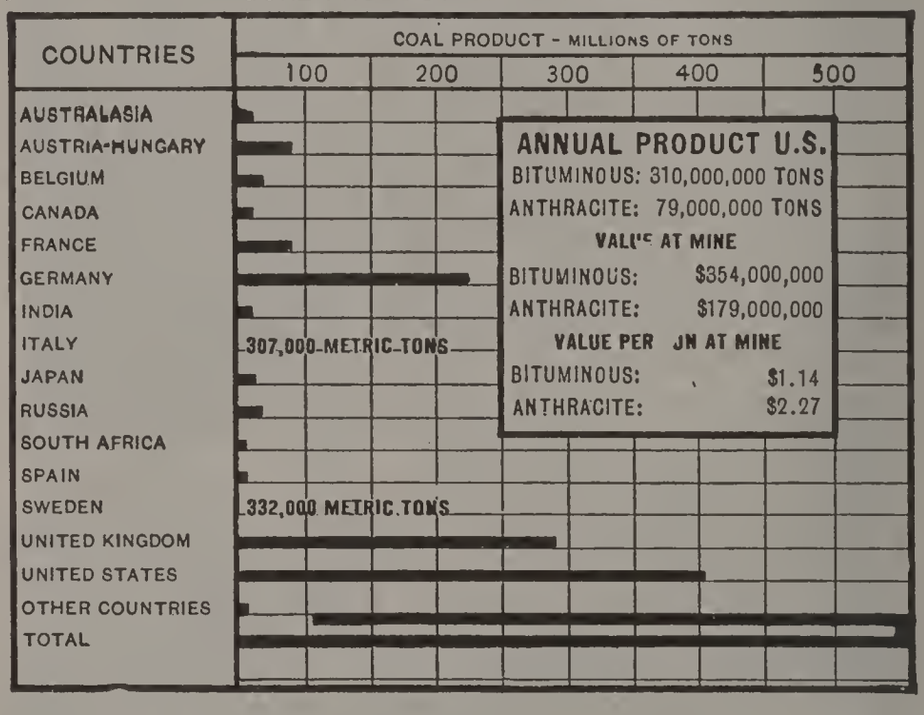
The sixth region is one of uncertain and scattered character and occurs chiefly in Colorado, Utah and Arizona. On the Pacific coast is the seventh region embracing Washington, Oregon and California. Altogether there are 335,000 sq. m. of known coal territory in North America.

The anthracite area covers less than 1,000 sq. m. Half of this is in Massachusetts and Rhode Island, where the anthracite is almost without fuel value because of its graphitic character and consequently no production has been reported in recent years. Colorado contains 15 sq. m. Four hundred and seventy sq. m. are found in Pennsylvania. From this region all the anthracite produced in the U. S. is obtained. In 1905, 77,659,850 tons were produced with a spot value of $141,879,000. The total production of bituminous and lignite in the United States, 1905, was 315,259,491 tons, with a spot value of $334,877,963. (That is, enough coal was produced in the U. S. to furnish 4.73 tons per capita.) Total production for 1905 was as follows: In the U. S., 392,919,341 tons; in Great Britain, 264,464,408; in Germany, 191,576,074. Following in the order of their importance are Austria-Hungary, France, Belgium, Russia, Japan, India, Canada, New South Wales, Spain, South African Republic and New Zealand. These produced from 45,000,000 to 1,000,000 tons. No other countries produce more than a few hundred thousand. The total production of the world is more than 1,000,000,000 tons.

The first shipment of coal to London was in 1240 and after such fuel had been used for 66 years and had become somewhat general, a law was passed against it on account of the smoke which was declared to spoil ladies' complexions and clothes. However, its use continued and in time became so general that in 1552 the cry was for the first time sounded that coal would soon be exhausted. In 1698 the first mention of coal in the U. S. was made by Father Hennepin as occurring near Fort Creve Cœur on the Illinois river. Anthracite was discovered in Rhode Island in 1760, but being graphitic was not used and even the fine variety which occurs in Pennsylvania was not used for 40 years after. All early use of coal was very local owing to lack of transportation. With

this fuel, transportation became a possibility and the growth of cities. One pound of coal in a good engine will produce six horse-power for one hour. One ton will produce 13,000 horse-power, and since some railroads use 10,000 tons per day they have the equivalent of the work of 130,000,000 horses for one hour—without the necessity of feeding the horses. It is estimated that one pound of coal can produce as many foot pounds of energy as one man per day; 300 pounds will furnish as much power as one man per year. Then if half the coal produced in the U. S. in 1905 were used as source of power it could do the work of 1,600,000,000 men. This furnishes one explanation of the remarkable growth in wealth of the U. S. in the last 50 years—a growth which has not been equaled before in the history of the world. In using coal so lavishly we are drawing on the energy stored in the earth by the slow growth and transformation of a succession of swamps and forests requiring the sunshine of millions of years. The disappearance of the coal supply is but a question of time. In less than 300 years workable coal seams will probably be exhausted in Europe. Those in other parts of the world will last longer. But coal producers and users should seek to avoid the wasteful methods which at present prevail in (1) mining, (2) removal, and (3) in use in furnace, stove and fireplace.

COAL PRODUCT OF THE WORLD



The coal product chart shows the United States as having the largest annual average, then come the United Kingdom and Germany. The tabular exhibit on the face of the chart shows the enormous average output of bituminous and anthracite coal from the mines of the United States, together with the aggregate values and the value

per ton at the mine. It will be noted that the value per ton of anthracite at the mine is almost exactly double that of bituminous coal.

COAL'-BEDS: see CARBONIFEROUS SYSTEM.

COALESCE, v. *kō'ălĕs'* [L. *coales'cĕrĕ*, to grow together —from *con*, *ales'cĕrĕ*, to grow up: It. *coalizzare:* F. *coaliser*]: to grow together; to unite; to adhere in masses; to assimilate or unite as one, as nations by intermarriages. COALES'CING, imp. COALESCED', pp. *-lĕst'*. COALES'CENT, a. *-lĕs'ĕnt*, growing or uniting together. COALES'CENCE, n. *-ĕns*, the act of growing together; union. COALITI'ON, n. *-lĭsh'ŭn* [mid. L. *cōălĭtĭōnem*, an assembly]: a union (or league for united action) of persons, parties, or states for a common object; a confederacy or league; union of separate bodies or parts into one mass. A COALITION GOVERNMENT, a government made up of members from opposing parties by mutual concession of principles.—(1) ENGLISH. Pitt the elder, when he took office in England, 1757, coalesced with the whig aristocracy represented by the Duke of Newcastle. The ministry always spoken of, however, as the Great Coalition was formed 1782, when Fox, leader of the Reformers, took office with Lord North, the leader of the opposite party. When Lord Derby's ministry resigned, 1853, there was a short coalition between the whig party, under Lord John Russell, and the more moderate of the conservative party, under Lord Aberdeen. (2) AMERICAN. In 1824, there being no electoral majority for President, the smallest (Henry Clay) party joining in electing the head of the second (J. Q. Adams); the largest (Andrew Jackson) considered this defeating the popular will, and when Adams later made Clay secretary of state, declared it to be in pursuance of a corrupt bargain, and gave it the name of the ill-savored Fox-North Coalition. The nickname was used for many years with damaging effect, though perfectly irrelevant, as the Clay and Adams parties were in close sympathy politically, and their heads not hostile personally. The Clay men much preferred a trained and gentlemanly statesman like Adams to one whom they regarded as an ignorant and violent demagogue, and Clay's position and ability entitled him to the place, which other great party leaders (Blaine, for example) have held later.—SYN. of 'coalesce': to amalgamate; unite; cohere; join; add;—of 'coalition': confederation; confederacy; combination; conspiracy; league; alliance; conjunction.

COAL'-FISH (*Merlangus carbonarius*): fish of the same family with the cod and haddock (*Gadidæ*), and of the same genus with the whiting. It is not unlike the whiting in form, and in its fins, which, however, are not proportionally so large, but is it of very different color, the upper parts being nearly black. It attains, also, a much larger size, being often two or three ft. in length. It is celebrated among fishermen for its voracity, and is commonly found in large shoals, which, when attracted by

bait, will keep near a boat till great numbers are taken. It is rather a coarse fish, but is much used in the n. parts of the world, fresh and salted, or dried. It is found in the most arctic regions, even on the shores of Spitzbergen, and on the European and American sides of the Atlantic. It is very plentiful on the British coasts, and in Scotland is generally known as the *Sethe*. The fry are taken in great numbers by juvenile fishers stationed on rocks, and are called *podleys* on the e. and w. coasts of Scotland, *sillocks* and *cuddies* on some of the Scottish coasts, and *coalseys* in the n.e. of England. This fish is an important part of the food of the Orkney and Shetland islanders, and of the inhabitants of some of the Hebrides. Vast numbers of the fry are sometimes caught by means of blankets in the mouths of streams in the Hebrides. The liver of the Coalfish abounds in oil, which is used for lamps.

COAL MEASURES, AGE OF, see *Paleontology*.

COAL MINING. Coal mining differs from metalliferous mining chiefly in the better ventilation required, the extent and regularity of mine workings, and the necessity of getting out the mine product with as little dust as possible. The principal gases found in coal mines are carbon dioxide, CO_2, heavier than air, suffocating, but not inflammable, called choke-damp by miners; carbon monoxide; CO, about as heavy as air, poisonous and inflammable, the dreaded white-damp of the miners; carburetted hydrogen, CH_4, light, not poisonous, but inflammable, the chief constituent of fire-damp; also, but less important, sulphuretted hydrogen, poisonous and inflammable, but easily detected by its odor. Of these gases, marsh gas, given off in large quantities in some mines, is the chief agent in coal-mine explosions. A mine is said to be fiery, when the coal-seams give off much fire-damp. Many of the deeper coal mines of Great Britain, France, and Germany are very fiery. The most fiery mines in the United States are in the anthracite region of Pennsylvania, the South Wilkes-Barre shaft at Wilkes-Barre being one of the most fiery mines in the world. A mixture of marsh-gas and air in certain proportions explodes violently on contact with flame. Coal-dust in the air makes a much smaller proportion of marsh-gas an explosive mixture.

To enable men to work in places where sufficient air to carry away the gas does not circulate, or to enable them to work in very fiery mines, safety-lamps are used. In a safety-lamp the flame is enclosed by wire gauze and cannot ignite gas in the air outside the gauze, unless the gauze is heated to the combustion point of the gas. Carbon dioxide and carbon monoxide given off by the coal in place are produced in the mined-out areas known as 'gob.' These gases are the chief constituents of after-damp, the gases resulting from an explosion of dust or fire-damp. They, rather than the shock, cause the terrible loss of life in mine explosions, since men may be killed by carbon monoxide without knowing they are in danger. Good

ventilation is thus a prime necessity in coal mining. It is sometimes secured by a furnace over a shaft, the fire producing a sufficiently strong up-current. But in all fiery mines, and generally in all large mines, large revolving fans, sometimes 35 feet in diameter, are used to circulate the air. The fans may exhaust or force in air (up-draft or down-draft.)

As most coal-seams worked are a few feet thick, but of considerable exent, and as in this country at least, most coal-beds lie flat or dip at low angles, a coal mine can be opened in a more regular way than a metalliferous mine. Two systems of mining are used—the pillar and room ('board and pillar'), and the long wall. The first, generally used in the United States, consists in taking out various portions of the coal as the work proceeds, from the mine-opening, and the remainder in working back toward the opening. The long wall system, used in certain bituminous districts in the United States, and extensively used in England, consists in taking out all the coal in a long face as the work advances from the mine-opening, the roadways and air-passages being protected by packs or walls. It is best suited for thin coal-seams with weak roofs, while the pillar-and-room system is best suited for thick seams with rock roofs. The two systems grade into each other. Coal is broken from the face of the seam by the miner under-cutting it with his pick and then putting in a blast strong enough to bring down the coal. Black powder is generally used in this country. Abroad explosives making less flame are required by law in many districts, and in some of the very fiery German mines wedges operated by hydraulic power are used.

To under-cut the coal, machines are sometimes used. Those in general use in this country are of two types: the Harrison, or puncher type, with a reciprocating piston impelled by compressed air, carrying a cutting bit; and the chain machine, having an electrically driven chain carrying cutting teeth. The latter type, though not favored for fiery mines, is probably more used in newly opened mines, than the former. No machines are used in the Pennsylvania anthracite mines.

The coal, when broken down, is roughly sorted by the miner or his helper and loaded into mine cars which are hauled to the main haulage roads by mules. Here the cars from the various gangways are usually made up into trains (or 'trips') and hauled to the shaft bottom or the entrance of the mine by a wire rope (tail-rope haulage), by a compressed air locomotive, or by an electric locomotive. Sometimes the cars are attached singly to an endless wire rope like cars on an ordinary surface cable road (endless-rope haulage). In shaft mines, and especially those of anthracite, mules are used very extensively. Where mechanical power is employed to haul trains in the main haulage-ways, these beasts bring the cars only from the side headings or the rooms. The mules do not see daylight for months at a time. In bituminous drift mines,

evolution has included the introduction of miniature trolley trains of 40 or 50 cars, each train being in charge of a motorman and brakeman. In anthracite drifts steam locomotives of a small and peculiar type, known as 'hogs,' haul the trains. In a slope mine, cable trains transport the coal. One end of the cable is attached to the train, and the other winds upon a drum at the power-house. When the cable turns a corner it passes around what is known as a 'bull wheel.' Twenty-five one-ton cars may comprise a cable train of soft coal. Anthracite cars often hold four and a half tons. In soft-coal mines the man in charge of the cable train is called a 'rope rider.' In bringing his cars out of the mine he sits upon the ring which connects the cable with the train. In the anthracite slopes a man stands upon the side of a car ready to 'sprag' the wheels when a stop is made. Spragging consists in throwing short but stout lengths of wood into the openings between the four spokes of the car wheel.

Mines of the shaft type are to be found in largest numbers in the hard-coal districts. The hard-coal mines are likewise the deepest. Occasionally an extreme depth of 1,500 feet is attained. Two other styles of mines are found in both anthracite and bituminous fields,—'drifts' and 'slopes.' The drift mine is dug straight into the mountain from one side. The passageway or heading may have an upward trend. The slope mine slants downward to the extent of perhaps 35 or 40 degrees, the main heading often measuring a mile or more in length.

Occasionally coal is found in quantities near the surface of the ground. This is true to-day in parts of Missouri. At both Hazelton and Summit Hill, in Pennsylvania, coal has been extracted by an uncovering operation known as 'stripping' which is regarded as apart from mining proper. An interesting process also is 'pocket mining' but this is practised comparatively little to-day. The height of the bituminous vein is often not more than four or five feet, thus making the quarters of the miners rather cramped. Off from the main or side headings of a hard-coal mine 'breasts' or 'chambers' are opened. In bituminous fields these are known as 'rooms.' A tunnel or neck 40 to 60 feet long may connect the room proper with the main passageway. Beyond the neck the chamber may broaden out to a width of 30 or more feet, continuing indefinitely. The coal between the rooms forms what is known as a 'rib' or 'pillar.' As the rooms begin to broaden to their maximum widths, timber props are placed between the floors and ceilings to support the loose rock an dearth. When all the coal that it is practical to mine in the chambers has been extracted, the work of drawing the ribs between the rooms is begun, eventually allowing the rock above to cave in. When drawing a rib, the soft-coal miner keeps but one car beside him. He cannot tell how much of the rib he will be able to remove before the rock above his head will fall. The first warning of approaching danger is a drumming noise from the layer of stone over-

head. Sometimes this noise may be heard hours before the final crash; in anthracite mines it may be perhaps weeks before. Again, it may come with marked suddenness.

The coal, when brought to the surface, is screened, and at many bituminous mines is then shipped as lump and slack. Sometimes it is broken and washed, and in the anthracite region of Pennsylvania, where coal is shipped in seven or more sizes, the coal, as it comes from the mine, is passed through the breaker.

A modern coal breaker is capable of turning out 1,000 tons of clean coal per day. Some breakers have a much larger capacity. The anthracite is brought to the head of the breaker over a little railway leading from the mine in the side of the mountain. The coal, when dumped from the cars, passes over a screen 30 feet in length, through which the fine coal sifts. The big chunks next pass to the breaker proper, where rolls with sharp teeth crush it. It next runs into a screen which is cylindrical in shape, and not unlike a locomotive boiler in appearance. As the coal is handled in this device, it falls through perforations of different sizes, each size dropping into a separate chute. On benches at intervals on these chutes, sit the breaker boys, presided over by a foreman. As the coal passes slowly down the chute at their feet, these lads pick the slate from it and throw the refuse into a parallel chute. The inexperienced boys are always at the upper end of the chutes. They succeed in picking a part of the slate from the coal, and then it passes to the next workmen in line, who continue the operation until, by the time the product has reached the boys at the bottom of the chutes, it is pretty well cleaned. The coal is also washed to free it from dust. From the chutes the various-sized coal finds its way into bins, from which it is discharged into cars.

Mechanical contrivances for sorting have recently been installed at great cost in modern breakers. These inventions are spiral in shape, and provide for ridding the coal of much of its slate by centrifugal force. But even with these machines the final operation must be performed by boys or men.

COAL-TAR: thick, black, opaque liquid, which comes over and condenses in the pipes when coal is distilled, as in the manufacture of coke or illuminating gas made from coal. It is slightly heavier than water, and has a strong, disagreeable odor. Coal tar is a mixture of many distinct liquid and solid substances, and the separation of the more useful of these constitutes an important branch of manufacturing chemistry. The tar is first distilled in large malleable iron stills. The *first runnings*, constituting 2-4% of the tar, consist of carbon disulphide, paraffins, olefines, benzene, etc., and a little ammonia water. These are collected separately from the following portions. The temperature now rises to 100°C., between which and 210°, the *crude naphtha* or *light oil* passes over.

The latter name is given because it floats on water. It amounts to 7-8 per cent. of the tar. Between 210° and 400°C. *heavy* or *dead oil* passes over, sometimes this is collected in two portions, that boiling below 270° being known as *creosote oil*, and the higher boiling fraction as *anthracene oil*. These portions are then redistilled in order to separate the valuable constituents such as *benzene* (q.v), *toluene* (q.v.), *anthracene*, etc. Basic substances such as pyridine, are removed from the oils by agitating them with sulphuric acid, and phenol (carbolic acid) is extracted by washing the oils with sodium hydroxide solution. The residue in the retorts is called *pitch* (q.v.). After the above series of operations those portions of the oils which are too thick for use as solvents, and which will not burn in ordinary lamps, are employed in the manufacture of lubricants, for heating, and also occasionally for lighting unenclosed spaces. For these purposes special appliances are necessary in order that the oil may be converted into a fine spray mixed with air or steam or both. It is this spray which is burned. See FUEL, LIQUID. In part they are used in the manufacture of lamp-black. See CARBON.

COAL TAR COLORS: see DYES.

COAMINGS, n. plu. *kōm'ĭngz:* among *seamen*, raised work round the hatches of a ship to prevent water from running down hatchways and scuttles into the hold.

COAN, *kō'an*, TITUS, D.D.: 1801, Feb. 1—1882, Dec. 1; b. Killingworth, Conn.: missionary. After teaching for some years, he graduated 1833 at Auburn Theol. Seminary, received Congregational ordination in Boston, and sailed, Aug. 16, for the Straits of Magellan, to explore with reference to a possible mission. Escaping with difficulty from the natives, he reached Conn. 1834, May, and Dec. 5 sailed with his bride and others for Honolulu, Sandwich Islands. Establishing himself at Hilo, he labored with great activity and success, organizing schools and churches, travelling on foot over 100 m. of coast, and receiving 13,000 converts. He gave special attention to volcanoes, observing Kilauea and Mokuaweowec for 40 yrs., and wrote much about them. He visited the Marquesas missions 1860 and 1867, and the United States 1870, making 239 addresses in 11 months. Besides numerous contributions to the *Amer. Jour. of Science*, the *Missionary Herald*, etc., he wrote *Adventures in Patagonia* (N. Y. 1880), and *Life in Hawaii* (1882). He died at Hilo.

COANZA, *kō-ân'za:* river of Lower Guinea, w. Africa, which, after a course of about 500 or 600 m., enters the Atlantic s. of St. Paul de Loando; lat. about 9° 10′ s. It is navigable for a considerable distance, but a bar at its mouth renders it inaccessible save to small vessels.

COARCTATE, a. *kō-ârk'tāt* [L. *con*, together; *arctus*, constrained, tight]: confined into a narrow compass; in *bot.*, closely pressed together. COARCTATION, n. *kō'ârk-tā'shŭn*, the state of being restricted to a narrow space; the state of being closely pressed together.

COARSE, a. *kōrs* [a supposed corrupted form of *course*, as in the phrase 'of course,' meaning, according to the regular order of events: perhaps connected with Eng. *gross*, Scot. *gorsk*, strong and rank, as grass]: not refined from impurities; not soft or fine in texture; rude; rough; gross; impure; indelicate. COARSE'LY, ad. *-lĭ*. COARSE'NESS, n. the state or quality of being coarse.—SYN. of 'coarse': rude; rough; gross; blunt; uncouth; large; thick; unpolished; inelegant; indelicate; mean.

COAST, n. *kōst* [OF, *coste*, a rib, a coast—from L. *costa*, a rib, a side: It. *costa:* F. *côte*]: the limit or border of a country; the sea-shore or land near it: v. to sail near the land or in sight of it; to sail from port to port in the same country; in OE., to draw near. COAST'ING. imp. ADJ. applied to the trade carried on in ships between different parts of the same country; also a familiar term for boys' sport with sleds. COAST'ED, pp. COAST'ER, n. a vessel employed in home-trade only. COAST-GUARD, a body of men, connected with the navy, for watching the sea from the coast. COAST-LINE, ocean boundary of any portion of land; greatly increased where there is much indentation of the coast by bays and gulfs. The coast-line of Asia is abt. 30,000 m. in length; Africa, 15,000; Europe, 20,000; N. America, 23,000; S. America, 15,000. SEA COAST, margin of land next the sea. THE COAST IS CLEAR, the danger is over; no impediment exists; no enemies or opponents are in sight or at hand. COAST'WISE, ad. by or along the coast. COASTING-TRADE, commerce by sea from port to port of the same country. Formerly, no goods or passengers were allowed to be carried from one port of the United Kingdom to another, except in British vessels; but this restriction was repealed 1854, and the coast of Great Britain is now open to all the world. In other countries, the exclusive policy still prevails: see NAVIGATION LAWS.

COAST AND GEODETIC SURVEY, UNITED STATES: survey carried out by a division of the U. S. treasury department. The first authority for such a survey was in an act of congress 1807. In recent times its scope has been widened by act of congress, and it has been authorized to extend its triangulation into the interior of the country through such states as have a geological survey. Thenceforward it has been the coast and geodetic survey.

The plan upon which it is organized is the outgrowth of trial and experience during the first 50 years of its existence, and from its inception almost every year has seen some new feature added or some old one discarded.

Under the direction of a superintendent there are two great divisions of its work. They are the field and the office.

The field work includes all of the practical operations of the survey on land and sea.

Except in time of war, in accordance with the plan of reorganization of 1843, the work upon the land was divided between civilian assistants and officers of the army,

the hydrographic parties being in charge of naval officers. Since 1861 no officers of the army have been connected with the survey, and the conduct of the hydrographic work was about equally divided between the civilian assistants and naval officers until 1898, when the naval officers were relieved, and since which time none have been assigned to the survey. The civilian assistants consist of a body of trained experts permanently attached to the survey, and numbering between 50 and 60. The service owns a fleet of 11 steamers and 6 schooners, besides steam and motor launches.

The office is that part of the establishment which receives the records, original sheets, etc., representing the results of field work. They are registered and deposited in the archives until in turn they are taken up for examination, computation, and adjustment, prepared for publication, and finally published. Original charts are reduced or enlarged, engraved, electrotyped, and printed. For the convenience of administration the operations of the main office at Washington are carried on by eight divisions, each having some specified portion of the general work to perform. In these divisions are employed the required force of clerks, draftsmen, computers, engravers, instrument makers, printers, etc., numbering in all about 145. There are sub-offices at San Francisco, Seattle, Honolulu, and Manila. Many of the field operations of the survey being geodetic in their nature, a system of primary triangulation, together with the determination of geographic positions by means of astronomic methods, must furnish the foundation upon which the whole rests. On the Atlantic coast a chain of triangles, beginning at the eastern boundary of Maine stretches to the Gulf, constituting an oblique arc, which, besides serving as a basis for the coast triangulation, adds much to our knowledge of the figure of the earth.

An extensive system of triangles extends across the continent along the 39th parallel of latitude, connecting the surveys of the two coasts and furnishing a basis for the surveys of the 13 States through which it passes. It is also one of the longest arcs now available for the determination of the figure of the earth. Another triangulation system is being executed along the 98th meridian. Its extension southward through Mexico has already begun, and there is a prospect of its extension northward through the British possessions.

In connection with these principal systems, the triangulation has been considerably expanded in the New England States, New York, and several western States, including California, where some exceptionally large figures were introduced. The longest line so far observed is that from Mount Helena to Mount Shasta, over 190 miles in length. A tertiary triangulation for topographic and hydrographic purposes has been completed along the entire Atlantic and Gulf coasts, and over more than half of the Pacific coast, except Alaska. Much progress has been

made in the latter territory by methods which possess a sufficient degree of accuracy for immediate use and are capable of rapid execution. In the determination of astronomic positions the exact methods originally developed in the survey have been adhered to and perfected. The methods of using the zenith telescope for latitude and the telegraph for longtitude have been constantly improved.

The topographical operations have been mostly restricted to a narrow margin, not often over three to five miles wide, along the coast and surrounding harbors, bays, and rivers up to the head of tide water. In some cases it has been somewhat more extensive, notably in the survey of the District of Columbia, where the scale was 1-4800 and the contour interval only five feet. The hydrographic operations have extended as far out from the coast as was necessary for the interests of navigation, and have included, all harbors, channels, bays, etc., as far as the work has gone. Deep-sea soundings have been made extensively, especially in and about the Gulf Stream. Much attention has been given to tides, and continuous series of tidal records have been obtained at several important points.

The principal publications of the survey consist of about 500 different charts; tide tables for all the principal and many minor ports; a monthly edition of 4,700 copies of a circular known as *Notice to Mariners*, containing notes of all changes along the coast; *Coast Pilots*, containing minute sailing directions for all navigable waters along our coast; and the *Report of the Coast and Geodetic Survey*, which contains, besides the reports of the superintendent and his assistants on the conduct of the work, a series of special reports upon various technical and scientific operations of the service. For details of the work of the bureau see CHART; COAST PILOTS; GEODESY; GRAVITY; HYDROGRAPHY; LEVELING; SURVEYING; TIDES; etc.

COAST DEFENSE, systematic protection of a country against hostile attack along its coastlines. In providing such defense a nation will consider not only the safety of its territory, but also the security of its commercial interests. In any system of coast defense a good navy is the most important feature; and so essential is it considered, that all other means are regarded as adjuncts or auxiliaries of the navy. Along a well-defended coast, in suitable places, are stations or points of support where is stored the requisite material for building, equipping, repairing, and supplying naval vessels, and where provision is made for furnishing men when additional force is needed. Forts are built in places where the coast artillery may co-operate with the navy in obstructing the advance of an enemy intending to capture a city or to invade the country; where their guns may command the entrance to a harbor or other approach by water; wherever they may cripple the enemy's attack on the defensive fleet, leaving it free to attack the enemy in turn; where forts may assist each other, and co-operate

in repelling an invasion or preventing a blockade or a bombardment; where minor channels of approach may be closed or guarded, thus enabling the navy to give entire attention to the main channel, etc. Torpedo-boats, harbor-mines, the searchlight, which illuminates the harbor and permits detection of the enemy's manœuvres, are all valuable aids for the forts. The unfortified coast, as well as the land approaches to cities, must be defended in time of war by whatever means are at command.

The guns for coast defense change with the places and purposes for which they are to be used. To pierce the side armor of battleships, the flat trajectory, high-power guns are used; for projectiles intended to fall on the decks of an enemy's ships, the high-angle guns (mortars or howitzers) are employed. The number and size of guns vary with the estimated number and calibres of those which may be brought to bear by an enemy. From the depth and length of the channel may be determined how many and what classes of ships the enemy can operate in it, their armament, etc., and from these data the number and calibres of guns needed may be calculated.

The difficulty of obtaining naval supplies after war has been declared makes it necessary to store them during times of peace. Besides quantities of supplies at points of support for the navy, important harbors are generally equipped with torpedo storehouses, cable-tanks, mining casements, etc., for use in emergencies.

The tactics of coast defense have changed greatly since the beginning of the last decade of the 19th century. Besides defense against attack upon fortified places preparation is also necessary for resisting assaults upon unfortified coasts. The length of the United States coast-line makes its secure fortification a matter of great difficulty and expense.

Methods of reconnaissance are important for defense as well as for attack. The defense seeks to veil all batteries, and even in times of peace a journey along a fortified coast might not discover many forts or other means of defense. The enemy, in preparation for attack, or in action, seeks to discover the nature and strength of the defenses; and the defense in turn uses all possible methods of ascertaining the number and classes of the enemy's ships, the probable line of attack, and whatever else may be discoverable in regard to his strength and purposes. Pictures of every important warship in the world are studied by certain officers of every navy, and so close are some of these studies that a war vessel may be recognized by such an officer in any position in which he sees it. For the important work of reconnaissance observation stations are fully equipped for the coast artillery, photographs, drawings, descriptions of warships, telescopes, etc., for use in procuring information of the enemy, being fully provided.

The sea and lake coasts of the United States have been

divided into 13 naval districts. Torpedo boats are to be part of the defense of each district, and torpedo-boat bases will be established in them. Each district is to be in charge of an officer known as commandant. The districts follow: (1) Eastport, Me., to include Chatham, Mass.; torpedo-boat base, Rockland; commandant of the Portsmouth navy yard in charge. (2) Chatham to include New London, Conn.; torpedo-boat base, Narragansett Bay; officer specially detailed from Narragansett Bay headquarters in charge. (3) New London to include Barnegat, N. J.; officer detailed from headquarters in New York in charge. (4) Barnegat to include Assateague, Va.; torpedo-boat base, Delaware River; commandant of League Island navy yard in charge. (5) Assateague to include New River Inlet, N. C.; torpedo-boat base, Norfolk; commandant of the Norfolk navy yard in charge. (6) New River Inlet to include Jupiter Inlet, Fla.; torpedo-boat base, Charleston; commandant of Charleston navy yard in charge. (7) Jupiter Inlet, to include Tampa, Fla.; torpedo-boat bases, Tampa and Pensacola; commandant of Key West naval station in charge. (8) Tampa, to include Rio Grande; torpedo-boat base, lower Mississippi and West Gulf coast; commandant of Pensacola navy yard in charge. (9) Lake Michigan. (10) Lakes Erie and Ontario. (11) Lakes Huron and Superior. All these in charge of the commandant of the Lake training station near Sheboygan, Wis. (12) Southern boundary of United States on Pacific coast to lat. 42° N.; torpedo-boat base, Mare Island; commandant of Yerba Buena training station in charge. (13) Pacific coast from lat. 42° N. to northern boundary; torpedo-boat base. Puget Sound; commandant of Puget Sound navy yard in charge.

Information collected in these districts is to be sent to the office of naval intelligence. In time of peace the aide to the commandant, or some other line officer, is to be second in command in each district; in time of war lighthouse inspectors are to be second in command. See Blockade; Bombardment; Fortification.

COAST-GUARD: British organization, formerly intended merely to prevent smuggling, but now constituted as a defensive force also. The admiralty may, from time to time, issue orders for the augmentation of the C., not to exceed 10,000 men in all. The coasts of the United Kingdom are divided into 11 districts, each under a navy captain. The C. are taught naval gunnery, gunboat exercise, and the serving of land-batteries. The guard-ships are employed also as training-ships for the navy.

COAST PILOTS are compiled to assist mariners in the navigation of their vessels, and, when from any cause they are without charts, to enable them to safely carry their vessels from port to port along the coast. The governments of all large maritime nations publish works for these purposes.

The *Coast Pilots* published by the coast and geodetic survey contain:

1. A tabular description of lighthouses, light vessels, and fog signals; lists of life-saving stations, storm-warning display stations, and seacoast telegraph stations, and information regarding tides, tidal currents, variation of the compass, etc.

2. Nautical descriptions of the coast and harbors and general information concerning the several bodies of water and harbors, including notes relative to pilots, depth of water, draft of vessels entering the harbor supplies; facilities for making repairs, usual or best anchorage, and other matters of practical value. In each case the information of this nature precedes the sailing directions and is printed in smaller type.

3. Sailing directions, with subordinate paragraphs treating of prominent objects, dangers, aids to navigation, etc. The arrangement conforms to the order in which these matters would be considered in practice, and be available when wanted promptly. For this purpose, and to afford a ready means of reference from one part to another, the sailing directions, where long, are divided into numbered or lettered paragraphs, printed in large type, each followed by its own subordinate remarks in smaller type.

4. Appendices, containing rules of the road at sea and in inland waters; laws and regulations relative to pilotage, harbor control, national and local quarantine, and Marine Hospital service; and information regarding storm-warning displays.

5. Views of important points. These are only inserted in volumes which treat of localities which have not yet been surveyed or where the lighthouses and other aids to navigation are not sufficiently numerous to readily locate and navigate a vessel.

6. Sections of charts covering the coast treated in the volume to aid in finding the geographic positions of different localities. Index maps showing the limits of the charts covering the localities treated in the volume.

COAST RANGE. The Pacific shore of the United States rises abruptly from the ocean along nearly it whole length, with practically no coastal plain of any size from southern California to the Strait of San Juan de Fuca. The hills and low mountains which border the ocean are given the general name of the Coast Range. They do not form, however, a continuous ridge, but are rather parts of more or less disconnected uplifts, lower and possibly younger than the Sierra Nevada and Cascade ranges. North of the Strait of San Juan de Fuca the mountains of Vancouver Island and the Island range of British Columbia mark the continuation of these uplifts, although in British Columbia the name of Coast Range is given to the mountains which border the continental shore and are spurs of the Cascades.

In California the coast range comprises two parallel

ridges, 400 miles long, 30 to 60 miles apart, and parallel to the coast from Point Concepcion in lat. 35° to Cape Mendocino, the ridge on the coast being the coast range proper, and the inner the Monte Diablo range, the two separate the Sacramento and San Joaquin valleys from the Pacific. In the south the coast ranges and the Sierra Nevada coalesce and the topography is complicated by east and west ranges; thus opposite the Santa Barbara channel is the Santa Inez range, having a height of about 4,000 feet, and farther south is another east-and-west range, the Santa Monica. Still further south the uplift is much broken and irregular without strongly marked ridges but with portions rising into central dominating points like the San Bernardino and San Jacinto mountains about 11,000 feet high.

North of lat. 35°, toward San Francisco Bay, there are no very high peaks. The highest peaks near the bay are Monte Diablo, 3,856 feet, an isolated peak that is a conspicuous landmark for miles; Mount Helena, 4,343 feet; and Mount Hamilton, 4,400 feet, the latter famous as the site of the great Lick observatory. North of San Francisco Bay the heights of the summits gradually increase, and 150 miles north is Mount Bailey, 6,357 feet. Farther north the coast range becomes gradually a series of disconnected mountain groups, and near the Oregon line east-and-west ridges develop which unite with the Cascades, the most important of these being the Calapooia Mountains in Oregon.

Along the Oregon coast the uplift is low, being generally less than 3,000 feet. In Washington also the uplift is not great except in the Olympic Mountains between Puget Sound and the Pacific Ocean, which culminate in the fine peak of Mount Olympus, 8,150 feet.

The coast range naturally has no river systems, nor, except in California, is it a barrier to rivers of the interior. It is crossed by the Columbia, Coquille, Rogue, Klamath, and other rivers. See BRITISH COLUMBIA; CALIFORNIA; OREGON; WASHINGTON.

COASTING TRADE, trade carried on by sea between the ports of the same country. In some countries the coasting trade is retained as a home monopoly, and this used to be the case in the United Kingdom, but by recent laws the coasting-trade of Great Britain has been opened to foreign vessels, subject to the same rules, dues, and regulations as British sailing ships and steamers; but power was given to impose by an order in council retaliatory prohibitions and restrictions on the ships of such countries as should impose restrictions and prohibitions on British ships. The dues and regulations to which vessels engaged in the coasting trade are subject are different from those which relate to vessels engaged in the oversea trade, and masters are required to keep books showing that their cargoes are strictly such as are allowable by the rules of the coasting trade. In the United States the coasting trade is restricted to vessels belonging to

the country. The commerce of the Great Lakes is included in the coasting trade. The great length of the sea and lake coasts, the number of good harbors, and the fact that much of the coast region of the United States has been settled makes the coasting trade of this country the most extensive in the world. Many hundreds of sailing craft and steamers are used in this trade, carrying the products and people of one part of the country to other parts.

COAT, n. *kōt* [F. *cotte*, a frock—from It. *cotta*, a coat or frock: OHG. *kott;* Gael. *cota*, an upper garment]: a man's garment worn above the waistcoat or vest; an upper garment; an external covering; a layer of any substance, as a coat of paint: V. to cover or spread over, as paint on a wall; to smear; to put on a coat. COAT'ING, imp.: N. a covering; any substance spread over another. COAT'ED, pp.: ADJ. in *bot.*, having concentric coats or layers. COATEE, n. *kō-tē'*, a half coat; a very short coat. COAT-OF ARMS, the emblazonment of armorial bearings on an escutcheon; in the middle ages, taking the place of the *paludamentum* of the ancient Roman captains. It was a coat worn by princes and great barons over their armor, and descended to the knee. It was made of cloth of gold or silver, of fur, or of velvet, and bore armorial insignia. The 'coat of arms,' as understood by heraldry in the present day, is nothing more than a relic of the ancient armorial insignia, divested of the coat on which it used to be embroidered: see SHIELD: HERALDRY. COAT OF MAIL, a piece of armor in the form of a coat, made of metal scales or rings linked together: see ARMOR. TO TURN ONE'S COAT, to change one's party, church, or principles.

COATBRIDGE: rising and prosperous town of Scotland, in the parish of Old Monkland, about eight m. e. of Glasgow, on the Monkland canal and Caledonian railway. The town is straggling, has some good houses, and a number of small villages or suburbs on its outskirts. There are several churches besides the parish church, academies, and several other schools, banks, etc. The town is in the centre of a mineral district, is surrounded by about 50 smelting-furnaces, and contains eight malleable iron works, one tin-work (the only one in Scotland), and several other works connected with the iron manufacture. Pop. (1901) 36,981.

COATESVILLE, Pa., a borough of Chester County, situated on the Pennsylvania and the Wilmington & No. R.R.'s. It has a number of important industrial interests, including large boiler works, iron and steel works, foundries, and woolen and paper mills. Pop. (1910) 11,084.

COATI, *ko-ā'-tĭ*, or *koă-t'ĭ*, or *kō'atĭ*, or COATI-MONDI, *-mŏn'dĭ* (*Nasua*): genus of quadrupeds of the family *Ursidæ* (the Bear family); by some naturalists referred to *Viverridæ* (the Civet family), though their *pantigrade* character allies them rather to the former. They are most nearly allied to the racoons, and, like them, are ex-

clusively American. They are remarkable chiefly for the elongation of the snout, which is a sort of flexible proboscis, and is turned about in search of food, and employed in rooting up the earth to obtain worms and insects. They are often domesticated in S. America, and are very affectionate, active, troublesome, and amusing.

COATZACOALCO, *ko-ât-sâ-ko-âl'ko:* river of Mexico, province of Vera Cruz. It rises in the Sierra Madre, flows n.e. and n., and enters the Bay of C., in the Gulf of Mexico, lat. 18° 8′ n., long. 94° 17′ w. It was partially explored by a U. S. commission 1850, and more fully by Capt. Shufeldt 1870–71, to ascertain the feasibility of a canal across the isthmus of Tehuantepec, which is here 143½ m. wide. The C. receives several affluents, and is 1,500 ft. wide at its mouth, at which is a bar having two channels, 350 and 100 ft. wide, and 11 to 13 ft. deep; these have not changed since 1520, when Cortes had soundings taken. The river is navigable by the largest vessels for some 35 miles.

COATZACOALCOS, *kō-ăt'sä-kō-âl'kōs*; Mexico, a seaport town in the state of Vera Cruz, at the mouth of the Coatzacoalcos river, on the Gulf of Campeachy, 120 miles s.e. of Vera Cruz, with which it is connected by submarine telegraph, as also with Galveston, Tex., due n. across the Gulf of Mexico. Coatzacoalcos is the Atlantic terminus of the Tehuantepec isthmian railway connecting with Salina Cruz on the Pacific, and carries on an active transit trade, also, exporting timber, rubber, and other local products. The U. S. is represented by a consular agent. Pop. 5,000.

COAX, v. *kōks* [OE. *cokes*, a simpleton, a gull: F. *cocasse*, that says or does laughable or ridiculous things: Gael. *caoch*, blind]: to make a 'cokes' or fool of one; to wheedle or gull one into doing something; to persuade by fondling or flattery. Coax'ing, imp.: Adj. persuading by fondling or flattery: N. the art or process of coaxing. Coaxed, pp. *kōkst*. Coax'er, n. one who. Coax'ingly, ad. *-lĭ*. —Syn. of 'coax': to wheedle; flatter; soothe; fawn; cajole.

COB, n. *kŏb* [W. *cobio*, to thump; *cob*, a knock, a tuft: Gael. *cob*, abundance; *copan*, the pan of the head, boss of a shield]: a bunch, tuft, or cluster of a thing; the top or head; anything in round lumps; a dumpy horse; a strong pony; a foreign coin; a building composition of clay and gravel, or clay and chopped straw, laid on in lumps: V. to punish; to beat. Cob'bing, imp. Cobbed, pp. *kŏbd*. Cob'by, a. *-bĭ*, stout; brisk. Cob-stones, large stones. Cob-coals, large coals. Cob-nut, fine cultivated variety of the hazel-nut (q.v.), like the filbert but larger, and round. In the W. Indies the name cob-nut is given to to the fruit of *Omphalea triandra*, tree of the nat. ord. *Euphorbiaceæ*. It is called also hog-nut. The tree has a white juice, which turns black in drying, and in Guiana is used instead of ink. The fruit is a three-celled capsule,

each cell containing one seed or nut, which, if the embryo is retained, has very cathartic properties, but, after its extraction, is wholesome and pleasant. COBBLES, n. plu. *kŏb'blz*, in *prov. Eng.*, small round coals or stones.

COBALT, *kō'bawlt*, [Ger. *kobalt*—from *kobold*, the goblin or demon of Ger. mines]: a metal which occurs combined with arsenic, nickel, and other metals; also as a sulphide and as an arsenate. After the ore has been calcined, oxide of cobalt remains, but impure from the presence of other metallic oxides. When this oxide has been purified and reduced to the metallic state the cobalt is obtained of a white color inclining to gray, and, if tarnished, to red, with a moderate lustre. Its fracture is compact; it is hard, brittle, and of a specific gravity of 8.5 to 8.9; symbol Co. Like nickel, it is strongly magnetic. It undergoes little change in the air, but absorbs oxygen when heated in open vessels. It is attacked, though slowly, by sulphuric or hydrochloric acid, and is readily oxidized by means of nitric acid. Two basic oxides of cobalt are known, and some intermediate oxides. The protoxide is of an ash-gray color, and is the basis of the salts of cobalt, most of which are of a pink hue. When heated to redness in an open vessel it absorbs oxygen and is converted into a higher oxide. It may be prepared by decomposing the carbonate of cobalt by heat in a vessel from which atmospheric air is excluded. It is easily known by its giving a blue tint to borax when melted with it. It is employed in the arts, in the form of smalt, for communicating a similar color to glass, earthenware, and porcelain. *Smalt*, or or powder blue, is made by melting three parts of fine white sand, or of calcined flints, with two of purified pearl-ash and one of cobalt ore previously calcined, and ladling it out of the pots into a vessel of cold water; after which the dark-blue glass, or zaffer, is ground, washed, and distributed into different shades of color, which shades are occasioned by the different qualities of the ore and the coarser or finer grinding of the powder. Smalt, besides being used to stain glass and pottery, is often substituted, in painting, for ultramarine blue, and is likewise employed to give to paper and linen a bluish tinge. The chloride of cobalt is well known as a *sympathetic ink*. When diluted with water so as to form a pale pink solution, and then employed as ink, the letters, which are invisible in the cold, become blue if gently heated. It is prepared by dissolving precipitated oxide of cobalt in hydrochloric acid with the aid of heat, and diluting with water. The nitrate of cobalt is readily got by dissolving cobalt or its oxide in nitric acid and crystalizing the solution. It is a deliquescent red salt, which dissolves in water with a pink color. The peroxide of cobalt is black, and is formed by adding a solution of bleaching-powder to a cobaltous salt, or by passing a current of chlorine gas through water holding cobaltous hydrate in suspension. It does not unite with acids;

and when digested in hydrochloric acid the cobaltous chloride is generated with the disengagement of chlorine. When heated it is converted into one of the intermediate oxides.

White cobalt ore, or bright white cobalt ore consists of cobalt, arsenic and sulphur. Its color is tin-white, liable to tarnish, with little lustre. It occurs massive and crystallized, in cubes and octohedrons. It is hard and brittle. Specific gravity about 6. Before the blowpipe it melts and gives an arsenical smoke and odor. It occurs chiefly in primitive rocks, and is frequently accompanied by bismuth. Gray cobalt ore is an alloy of cobalt with arsenic and iron, and is sometimes accompanied with small portions of nickel and bismuth. Its color is light gray liable to tarnish. It occurs massive or disseminated, and is never crystallized. It has been found at Chalham, Conn., but not wrought there advantageously; it also occurs in Bohemia and other parts of Europe. Red cobalt ore or cobalt bloom is a hydrated arsenate of cobalt, of a beautiful peach-blossom red color. It occurs massive, disseminated, and in minute crystals, often accompaning other ores of cobalt.

COBALT. This mining camp and town is situated in the midst of the lake and forest wilderness of Northern Ontario—near Lake Temiskaming, 338 miles north from Toronto and 103 miles from North Bay, Ontario, where the Grand Trunk, the Canadian Pacific and the Temiskaming and Northern Ontario railways meet. It was the projection of the last mentioned line through 'New' Ontario by the Ontario Government in 1903 which led to the discovery of the cobalt-nickel and arsenide deposits which have since made the region so suddenly famous for its wealth of silver. Government surveys quickly followed; Mr. W. G. Miller, the provincial geologist, testified as to the richness of the ore; Mr. E. P. Earle, of New York, purchased the Nipissing mines for his company. Other discoveries were made and development commenced while the camp took to itself a name and became a town with a fluctuating population of from 3,000 to 8,000 people. The Temiskaming Railway was rapidly constructed into the place.

Mr. W. G. Miller, 1906, April 7, declared that the discoveries were of 'an extent and wealth seldom before known in the history of lode mining.' The Ontario Government withdrew a large section near Cobalt called the Gillies Limit from prospecting or sale and declared its intention to carry on the operation of the section as a public work. On the other hand the Guggenheims of New York shortly afterwards gave the camp a serious blow by withdrawing from their option for the purchase of the Nipissing Mine on the alleged ground of insecure title. At the end of 1906 there were 35 companies in the field which had found veins of ore and nearly 200 other companies, chiefly with Ontario charters for the conduct of operations. They were capitalized at about $250,000,

600. Prof. W. A. Park of Toronto University, who had made a study of the Camp, stated 1906, Nov. 15, that a production of $20,000,000 a year for ten years was a generous estimate of capabilities. During 1905 $1,355,306 worth of silver was shipped and $100,000 worth of cobalt. The 2,144 tons of ore shipped during the year had a percentage composition of: silver 3.90, cobalt 5.50, nickel 3.49, arsenic 25.60. A percentage of silver of 3.90 represents 1,138.72 ounces per ton, or at 64 cents an ounce, the present price of silver, a value of $728.78 a ton of ore throughout the year. The average value of the total metallic contents per ton of ore shipped throughout the year, at the prices received, was $684.94. The total value of the shipments for 1905 was $1,468,524. In the following year production rapidly increased and in 1906, October, the total was over $1,000,000 for the single month with some 15 shipping mines. Cobalt as a mineral is a substance not unlike iron and its chief production has so far been in Saxony and New Caledonia. When added to steel it has a hardening effect such as nickel. Some of its salts are used for blue stained glass and china or mixed with yellow china to produce a pure white. The demand for cobalt is not very great at present but as a by-product it is valuable.

Whether the silver veins run to any great depth is the question. Professor Park believes they do and that the three square miles around Cobalt will produce a total of $50,000,000. Dr. Van Hise of the United States Geological Survey said 1906, Sept. 21, that he 'could see no reason why the great veins of the Cobalt district should not have as great a prospective depth as veins of similar width in Western America.

COBAN′: town of Central America, Guatemala, dept. of Vera Paz, in a fertile valley on the Rio Dolce, 55 m. n. of the town of Guatemala. The inhabitants are nearly all Indians, are generally industrious and some of them wealthy, and possess plantations of sugar-cane, bananas, pimentos, and various kinds of fruit-trees. Pop. 24,475.

COBB, David, M.D.: b. Attleborough, Mass., 1748, Sept. 14; d. 1839, Apr. 17. He graduated at Harvard 1766, practiced medicine at Taunton, Mass., and sat in the provincial congress 1775. He served as lieut.col. in N. J. and R. I. 1777–78, was one of Washington's aids, and became col. and brevet brig.gen. After the war he was maj.gen. of militia and judge of the Bristol co. (Mass.) court, was in congress 1793–95, and removed 1796 to Oldsborough, in the then province of Maine. Thence he was sent to the Mass. senate, was its pres. 1802, a councilor 1808, lieut.gov. 1809, and later chief justice of the Hancock co. (Me.) court. He returned 1817 to Taunton, and died there.

COBB, Henry Ives, American architect: b. Brookline, Mass., 1859, Aug. 19. He studied at the Massachusetts Institute of Technology, and graduated at Harvard 1880.

HOWELL COBB.

in 1881 he established himself in Chicago, and has built up a large and lucrative general practice in that city and other parts of the country. In 1893 he was one of the national board of architects of the World's Columbian Exposition, and at present is retained as a special architect for the United States government. Among the prominent public buildings erected from his designs are: the Newberry Library, Chicago, Opera House, University of Chicago, and Church of the Atonement, in Chicago; the Pennsylvania State Capitol, American University at Washington, D. C., and government buildings at Chicago, League Island, Annapolis, etc.

COBB, Howell, American statesman: b. Cherry Hill, Ga., 1815, Sept. 7, d. New York City, 1868, Oct. 9. He graduated, 1834, at Franklin College, Athens, Ga. was admitted to the bar 1836, was solicitor-gen. of the western circuit of Georgia 1837–40, and rapidly attained prominence. In congress as a democrat 1843–51, he professed strong attachment to the Union, but warmly advocated states rights and the extension of slavery. He was governor of Georgia 1851–53, again in congress 1855, and secretary of the treasury under Pres. Buchanan 1857–60, Dec. 10, when he resigned to follow the fortunes of his state. He was president of the Confederate congress at Montgomery, Ala., 1861, Feb., but did not harmonize with Jefferson Davis. On the demand of the Georgia members he was made brig. and maj.gen., but rendered little military service. He opposed the reconstruction measures, and died suddenly while visiting New York.

COBB, Sylvanus, American novelist: b. Waterville, Maine, 1823; d. Hyde Park, Mass., 1887, July 2. He was editor and publisher of a periodical called the *Rechabite* and besides contributing to other publications, was a most prolific story-writer. His most popular novels are: *The King's Talisman* (1851); *The Patriot Cruiser* (1859); *Ben Hamed* (1864); *The Gunmaker of Moscow;* etc.

COBB, Thomas Reed Root, American lawyer and soldier. b. Cherry Hill, Jefferson County, Georgia, 1823, April 10; d. Fredericksburg, Va., 1862, Dec. 13. He graduated at the head of his class at the University of Georgia, 1841, was admitted to the bar, and was reporter of the Georgia supreme court 1849–57. As a lawyer he enjoyed a wide reputation and large practice. In the Confederate Congress he was chairman of the Committee on Military Affairs, but later became a general in the army and was killed at the battle of Fredericksburg. He wrote: *Digest of the Statute Laws of Georgia* (1851); *Inquiry into the Law of Negro Slavery in the United States* (1858); *Historical Sketch of Slavery from the Earliest Periods* (1859).

COBBAN, James Maclaren, Scottish novelist: b. Aberdeen, Scotland, 1840, April 24. He is the author of *The Cure of Souls* (1879); *Tinted Vapors* (1885); *Master of His Fate* (1890); *A Reverend Gentleman* (1891); *Sir*

Ralph's Secret reprinted in America as *The Horned Cat* (1892); *The Red Sultan* (1893); *The Burden of Isabel* (1893); *The White Kaid of the Atlas, a Boy's Story* (1895); *The King of Akdaman* (1895); *Wilt Thou Have This Woman.* (1896); *Her Royal Highness' Love Affair* (1897); *The Angel of the Covenant* (1898); *Pursued by the Law* (1899); *An African Treasure* (1899); *Cease Fire* (1900); *I'd Crowns Resign* (1900); *The Golden Tooth* (1901); *The Green Turbans* (1901); *Life and Deeds of Earl Roberts* (1901); *The Last Alive* (1902); *Julius Courtney; Royal Exchange.*

COBBETT, *kŏb'ĕt,* WILLIAM: English political writer: 1762, Mar.—1835, June 18; b. Farnham, Surrey, where his father was a small farmer. From infancy he was trained in industry and self-dependence. Taking a dislike to rural occupations he went to London, where he was employed a few months as a copying-clerk—an employment so distasteful that he enlisted into the 54th Foot, and with it went out to Nova Scotia. In this regiment he remained about eight years, securing, by uniform good conduct, activity, and intelligence the high promotion of sergeant-major. During his soldier-years he indulged in none of the dissipations common to barrack-life, but devoted his leisure to self-education. On his return to England, about the end of 1791, he obtained his discharge, married, and went to America in the following year. He settled in Philadelphia, where he began his career as a political writer. Under the signature 'Peter Porcupine,' he was at this early stage as keen a tory as in later life he was a radical, and he lashed French republicanism and American democracy with a scorn as coarse and personal sometimes as it was always bitter. In America he was twice prosecuted for libel. He left America, 1800, June, and returned to England. In 1802, Jan., appeared the first number of his famous *Weekly Political Register,* which he continued without intermission 33 years until his death. At first tory, the *Register* gradually changed its politics, until at last it became the most fierce and determined opponent of the government, then presided over by Pitt, and the most uncompromising champion of radicalism. In 1810, having previously been twice tried and found guilty of libel on certain members of the government, he was sentenced to imprisonment for two years in Newgate, and to pay a fine of £1,000, for having in the *Register* made some severe remarks upon the flogging of five militiamen. In 1817, in consequence of pecuniary embarrassments, and the dread of being sent to Newgate again, under the six acts for the suppression of freedom of discussion, Cobbett went once more to the United States, where he remained more than two years, his articles for the *Register* being transmitted with unfailing regularity across the Atlantic. In 1829–30, Cobbett delivered political lectures in several principal towns of England and Scotland, and everywhere met most enthusi-

astic reception as the boldest and most powerful advocate of the people's rights. In 1832, he was returned to the first reformed parliament as one of the members for Oldham. His speeches in parliament, however, did not add to his reputation. Among C.'s best known works are his *English Grammar, Rural Rides, Cottage Economy, Advice to Young Men and Women,* and *Parliamentary History.* C. was not of the first order of intellect; he was shut out altogether from the higher and more refined departments of human thought; but in dealing with matters of common sense merely, he had a native vigor far surpassing that of any writer of his day; notwithstanding his crotchets, he rendered lasting service to the cause of the people. See Smith's *Life of C.* (1878.)

COBBLE, v. *kŏb'bl* [Scot. *hobble,* to cobble shoes: prov. Eng. *cobble,* to hobble, to walk clumsily: prov. Sw. *klabba,* to daub, to work unskillfully: OF. *cobler* to join together]: to daub or work clumsily; to mend by putting on a patch; to repair coarsely. COBBLING, imp. *kŏb'blĭng.* COBBLED, pp. *kŏb'bld,* badly made or mended. COB'BLER, n. *-blĕr,* one who; a mender of boots and shoes; a coarse, clumsy workman.

COBDEN, *kŏb'dĕn,* RICHARD: 1804, June 3—1865, Apr. 2; b. Dunford, near Midhurst, Sussex: eminent English politician, designated 'the Apostle of Free Trade.' His father, owner of some little land, which he cultivated himself, died while Richard was young, leaving his family in comparatively poor circumstances. Richard was received into a wholesale warehouse, belonging to his uncle, where he soon showed great aptitude for business. After some time he became a partner in a Manchester house, his presence here being speedily made manifest by the superior quality and tastefulness of the printed calicoes of the firm. In 1834–35, C. travelled in Turkey, Greece, and Egypt, and visited the United States, the result of his travels appearing in two pamphlets, entitled, respectively, *England, Ireland, and America,* and *Russia;* the latter intended as an antidote against the 'Russophobia' then prevalent. In these pamphlets, he also ridiculed the workings of diplomacy, and asserted England's mission to be the avoidance of war and the extension of commerce. In 1837, he contested unsuccessfully, on free-trade principles, the borough of Stockport; and in 1838 he carried in the Manchester chamber of commerce a motion to petition parliament for the repeal of all duties on corn. This was followed by similar action all over the country; and in the following year, petitions bearing some two millions of signatures for the repeal of the corn-laws were carried to London by 200 delegates. The motion of Mr. Villiers for repeal being rejected by a large majority of the house of commons, the friends of free trade determined to form the Anti-corn-law League (q.v.), of which C. became the most active and prominent member. To his lectures all over the country, and his speeches

in parliament (to which he was returned, 1841, by the constituency which had rejected him 1837)—all characterized by great information, clearness, and acute and convincing reasoning—was in great part due, as Sir Robert Peel acknowledged, the abolition of the corn-laws at so early a period as 1846. Having accomplished this great work, C. again visited the continent, and during his absence he was elected to parliament both for Stockport and for the West Riding of Yorkshire. He chose the latter constituency, which he continued to represent till 1857, when, on an appeal to the country by Lord Palmerston to support him in his Chinese policy, of which C. was a strenuous opponent, C. was rejected. Shortly after the repeal of the corn-laws the public testified its gratitude for his services rendered in this matter by subscribing for him a magnificent testimonial of between £60,000 and £70,000. C. now gave up business, and devoted himself exclusively to politics. He continued to labor assiduously for the extension of free-trade principles, for parliamentary and financial reform, for repeal of the taxes on knowledge, and was particularly earnest in enunciating national and international peace views; and to this feeling, with regard to war, he owed his rejection at the general election of 1857. In 1859, having in the interval, on account of ill health, retired from politics altogether, he was, during his absence in America, elected for Rochdale. Lord Palmerston, who was at this time called upon to form a new ministry, with a just appreciation of the great services which C. had rendered to his country, offered him a seat in the cabinet, which C., as the uncompromising opponent of the noble lord's foreign policy, felt bound to decline. After his election for Rochdale, the state of his health did not permit him to take any part in parliamentary proceedings, but as her majesty's plenipotentiary, he (1859–60) arranged and concluded a treaty of commerce with France. C. spoke out strongly in favor of the North during the American war of secession. See his *Life* by John Morley (1880).

COBDEN CLUB: English organization named in honor of Richard Cobden, founded, 1866, to advance in all parts of the world the principles with which Cobden's name is associated, and especially those of free-trade. Among its founders were Earl Russel, Mr. Gladstone, John Bright, John Stewart Mill, Prof. Thorold Rogers, Prof. Goldwin Smith, and other distinguished men, especially of the liberal party. The work of the club consists principally in the publication and circulation of books and pamphlets, written by members of the club or in accordance with its views. These writings have been very extensively distributed in all countries. Noteworthy among them, besides the publications in favor of free-trade, have been a volume of essays on systems of land tenure in various countries, and another on systems of local government and taxation. The club also gives prizes for essays on some subject in political economy or for proficiency in that study at the universities of Oxford, Cambridge, Manchester, Calcutta, Bombay, Madras, Sydney, and Melbourne, etc., and at Harvard and Yale

universities, and Williams College. The membership is large. The club has an annual club dinner, at which important and interesting speeches are often made. The extent of its operations in the United States is not known, through the advocates of a protective tariff ascribe to the club a large political influence.

COBIJA, *kō-bē′châ:* town of Bolivia, claims notice chiefly as the only seaport of the republic. It is in lat. 22° 34′ s., long. 70° 21′ w., and is cap. of the dept. La Mar. Its trade is inconsiderable; for, besides the disadvantage of an open roadstead to seaward, there extends inland the almost impracticable desert of Atacama. Hence most of the maritime commerce of the state (see BOLIVIA) passes, and that in the face of transit-duties, through the Peruvian harbors to the northward. Pop. 3,000.

COBI′TIS: see LOACH.

COBLE, or COBBLE, n. *kŏb′l* [Scot.: W. *ceubal*, a ferry-boat]: low, flat-bottomed boat with a square stern, used mostly by salmon-fishers.

COBLENZ, *kō′blĕnts:* city of Rhenish Prussia, beautifully situated at the junction of the Rhine and the Moselle; the former is here crossed by a bridge of boats, and the latter by a fine stone bridge. Being a bulwark of Germany against France, Coblenz is defended by extensive fortifications, forming a fortified camp for 100,000 men. For defense purposes, Coblenz is connected with the almost impregnable castle of Ehrenbreitstein (q.v.), on the opposite side of the Rhine. Several detached forts also guard the city at various points. In the old town of Coblenz many of the streets are irregular, narrow, and dirty; but in the new town they are generally well built, moderately wide, and cleanly. Among its principal buildings are the church of St. Castor, founded early in the 9th c.; the town-hall; the old castle of the electors of Treves, repaired 1845; and the old Jesuit college, now a *gymnasium*. The favorable position of Coblenz secures it an active commerce in wine, corn, mineral waters, etc. It manufactures champagne, cigars, japan-ware, and furniture. Many of the inhabitants are employed in vine culture. Coblenz was known to the Romans as *Confluentes*. Till 1796, it belonged to the Elector of Treves. In 1798 it was made the cap. of the new French dept. Rhine-Moselle and in 1815 was given to Prussia. Pop. 46,000.

COBOURG, *kō′bŭrg:* Canada, town, port of entry and county-seat of Northumberland county, Ontario, on the Grand Trunk Railway, 69 miles northeast of Toronto and 92 miles west by south of Kingston. It has a safe and commodious harbor on Lake Ontario and enjoys a large export trade in provisions, lumber, flour, etc. It has regular steamboat connection with the important United States and other Canadian lake ports. The town is well built and has many fine residences. There are six churches, a large new collegiate institute.

several schools, and a large public hall. It was formerly the seat of Victoria University now located at Toronto (q.v.). It has woolen mills, a car factory, carpet and matting factory, breweries, etc., banks and weekly newspapers, electric lights, gas and water works. Pop. (1901) 4,239.

COBRA-DI-CAPELLO, n. *kō'bră-dĭ-kă-pĕl'lō* [Port., serpent of the hood], (*Naja tripudians*):(sometimes the name Cobra-di-Capello extends to the whole genus *Naja*): very venomous serpents of the sub-order *Colubrina,* remarkable for the faculty of dilating the back and sides of the neck, which they do when excited. The dilatation depends on the length of the ribs from the head to the tenth vertebra; when at rest, these ribs are directed backward, but spread out the integuments of the neck when drawn forward and arranged horizontally. It is usually three or four ft. long, of a pale, rusty-brown color above, and bluish or yellowish-white below, and is characterized by a singular mark on the back of the neck, closely resembling the figure of an old-fashioned pair of spectacles, from which the animal sometimes receives the name of the *Spectacle snake.* The Cobra-di-Capello preys on lizzards and other small animals. It is usually sluggish, and is easily killed, even by means of a small stick or a whip Its venom is extremely powerful, its bite causing death in two hours or less. Yet it is little disposed to use its fangs, except for the purpose of providing itself with food. The Cobra-di-Capello is often found in the vicinity of human dwellings in the E. Indies, and even in the houses themselves, attracted, apparently, by the young of the domestic poultry, and by the moisture of the wells and drainage. When one is found in or near the house, its mate is seldom far off. The Shinghalese, when obliged to leave their houses in the dark, carry a small stick with a loose ring, the noise of which, as they strike it on the ground, warns the snakes to leave the path. The poison of the Cobra-di-Capello is secreted in a large gland in the head of the serpent, which, when the animal compresses its mouth upon any object, flows through a cavity of the tooth into the wound. The poison, though most deadly when introduced into the system through a wound, possesses the curious property of being perfectly harmless if taken internally. Olive oil, applied externally, and ammonia taken internally, cauterizing, and ligatures, immediately applied, may save the life; but the poison is so deadly that instances of recovery of bitten persons are very rare. See Buckland's *Curiosities of Natural History,* and Fayrer's *Thanatophidia of India* (London: Churchhill). The other species of *Naja* are found in the warm parts of Asia, Africa, and Australia.

COBURG, *kō'bûrg:* town of central Germany, duchy of Saxe-Coburg-Gotha, picturesquely situated on the left bank of the Itz, a tributary of the Regen; lat. 50° 15′ n., and long. 10° 58′ e. In the market place are some striking, old buildings, but the general appearance of the houses is one of cleanliness and comfort. Coburg is one of the

chief ducal residences, and the palace, a Gothic edifice, erected 1549, is one of the principal buildings in the town. The old castle of the dukes of Coburg, now partly used as a house of correction and prison, occupies a commanding height, more than 500 ft. above the town. The rooms, and the bed which Luther occupied when in concealment here 1530, are still exhibited to the visitors, as well as the pulpit from which he preached in the chapel of the castle. During the thirty years' war, the castle was ineffectually besieged by Wallenstein. Coburg is the seat of all the high courts of the duchy, and has manufactures of woolen, linen, cotton, marquetry, baskets, porcelain, furniture, and carriages, and exports beer. Pop. 20,460.

COBURG FAMILY, *kō′bŭrg,* Ger. *kō′bôrch:* in Germany, dating from the 5th c.; noted for intermarriages with royal houses, especially during the present century. A sister of Duke Ernest I. became Duchess of Kent and mother of Queen Victoria; the duke's brother Leopold became king of the Belgians, and married in succession daughters of George IV. of England and of Louis Philippe; one of his nephews, Ferdinand, married the queen of Portugal, and was regent of that kingdom 1853; another, August, married a daughter of Louis Philippe; one of his sons, Duke Ernest II., declined the crown of Greece 1863, and another, Prince Albert, was the husband of his cousin, Queen Victoria of England.

COBURG PENINSULA: most northerly part of Australia, w. of the Gulf of Carpentaria. It runs out in a n.w. direction toward Melville Island, from which it is divided by Dundas Strait. On its n.e. side is the bay known as Port Essington, at the head of which, about lat. 11° 22′ s., long. 132° 10′ e., was established, 1839, the settlement of Victoria, abandoned, on account of its insalubrity, six years thereafter.

COBWEB, n. *kŏb′wĕb* [W. *cob,* a tuft, a spider; *copyn,* a spider: Flem. *kop,* a spider: Fris. *kop,* a bubble]: the network spread by a spider to catch its prey; any snare: Adj. slender and feeble. Cob′webbed, a. *-wĕbd,* in *bot.,* covered with loose hairs.

COCA, n. *kō′kă* [Sp. *coca*—from an Aymara Indian word, *khoka,* signifying 'the plant'], (*Erythroxylon Coca*): shrub of the nat. ord. *Erythroxylaceæ,* of which the leaves are much used by the inhabitants of Peru and Bolivia as a narcotic and stimulant. The dried leaves (also called Coca) are chewed with a little finely powdered unslaked lime, or with the alkaline ashes of the quinoa (q.v.), or certain other plants. An infusion also is occasionally used. The properties and effects of Coca resemble those of opium, though it is less narcotic, while it has the property of dilating the pupil of the eye, which opium has not. It also lessens the desire for ordinary food, and for some time at least, enables the person who uses it to endure greater and more protracted exertion than he otherwise could, and with less food. It is especially remarkable for its property of pre-

venting the difficulty of respiration, so common in the ascent of long and steep slopes at great elevations. But when used habitually and in excess, it weakens the digestion, produces biliary and other disorders, and finally induces a miserable ruin both of body and mind. It has been in use from a very remote period among the Indians of S. America, and was extensively cultivated before the Spanish conquest. The shrub is 6 ft. high, and its leaves are picked and quickly dried in the sun, so as to preserve their green color. The annual yield of Coca (also called Cuca) in Peru, Bolivia, Ecuador, and Colombia, is about 30,000,000 lbs. Cocaine, n. *kō-kā′ĭn*, a vegetable alkaloid, with the chemical formula C_{17} H_{21} NO_4, obtained from the leaves of the coca shrub (*Erythroxylon coca*) of South America. The leaves are digested with ether, and the solution is evaporated to dryness and extracted with boiling water. Magnesia is then added, and the solution again evaporated, after which the cocaine is removed by solution in amyl alcohol. Cocaine crystallizes in small monoclinic prisms, which melt at 208° F., and are but slightly soluble in water, though they dissolve freely in hot alcohol and hot ether. Salts of cocaine are precipitated from solution by numerous reagents, among which are ammonia, caustic potash, sodium carbonate, picric acid, tannic acid, gold trichloride, and platinum tetrachloride. The substance popularly known as cocaine is the hydrochloride of the true alkaloid, this being the form in which the base is usually administered in medicine. It was in 1884 discovered by Dr. Koller of Vienna to produce complete local anæsthesia of any part of the mucous membrane to which it is applied. Since then its use has been developed to a very extensive degree both in medicine and surgery. When applied externally in proper strength it produces a loss of sensation, particularly to pain and touch, through paralysis of the terminations of the sensory nerves. When injected under the skin or applied to mucous membranes a feeling of numbness is produced and incisions or other painful manipulations may be practised on the part so treated without giving rise to discomfort. For this purpose solutions varying in strength from 2–10 per cent are usually employed. The applicability of local anæsthesia has been greatly extended by means of what is called nerve blocking. It has been found that on the injection of a small amount of a weak solution of cocaine into the trunk of the main nerve supplying a part sensation is cut off in that region and painless operating is possible. Cocaine has the disadvantage of being very poisonous to some persons, even in small quantities; it is also one of the most dangerous narcotics; its use tends swiftly to a habit utterly destructive of mind and body. Cocoa, n. *kō′kō′*, of the shops (see Cocoa) is the bean of the *Thēōbrōmă căcāō*. Cocoa-nut, the very large nut or fruit of the *Cocos* palm: see Cocoa.

COCAGNE, or Cocaigne, n. *kō-kān′* [F. *cocagne*—from OF. *quaigne*, a fabled land of milk and honey, where the

houses were made of cakes]: an imaginary land of idleness, plenty, and pleasure; a name applied to London and its suburbs: see COCKNEY.

COCCEIUS, *kok-tsā′yûs*, or COCH, *kok*, JOHANNES: 1603, Aug. 9—1669; b. Bremen: theologian. After preparatory studies in his native place, he went to Hamburg 1625, where he studied Hebrew. Thence he went to Franeker 1629. Returning to Bremen 1636, Cocceius was appointed prof. of Hebrew at the Athenæum of his native place; called to Franeker, for the same office 1630, and in 1643 appointed prof. of theology also. In 1650 he became prof. of theology at Leyden, where he died. Cocceius's chief work is the *Lexicon et Commentarius Sermonis Hebraici et Chaldaici Veteris Testamenti* (Leyden, 1669), the first approximately complete dictionary of the Hebrew language. The irrelevant and inaccurate matter which it originally contained, has been weeded out in the course of time by more skilful editors. Though Cocceius had great learning, he held very peculiar hermeneutical principles, which enabled him to discover the whole New Testament in the Old. The result, of course was that he virtually transferred the language of the Old Testament to the New. The representation abundantly employed in the former of a covenant between God and man, usurped the place of the New Testament doctrine of the Fatherhood and Sonship; and his theology is a modern renewal of the old attempt to Judaize Christianity, which Paul denounced and condemned. Cocceius carried 'the covenant theology,' which has its use in setting forth instructive analogies, it is called, to an absurd logical extreme. The most complete exposition of his views is in his *Summa Doctrinæ de Fœdere et Testamento Dei* (1648).

COCCEJI, *kok-tsā′yē*, HEINRICH, Freiherr VON: 1644, Mar. 25—1719, Aug. 17; b. Bremen. He studied at Leyden and in England; and was professor of law successively at Heidelberg, Utrecht, and Frankfort-on-the-Oder. He was ennobled 1713. As an erudite jurist, Cocceji was the oracle of many courts, and his work on German civil law (*Juris publici prudentia*, 1695) was almost universally used as an academical text-book for this branch of jurisprudence.

COCCO, *kŏk′kō*, or COCOA ROOT, *kō′kō*, or ED′DOES: plants of the genus *Colocasia*, and of the nearly allied genus *Caladium*, of the nat. ord. *Araceæ;* generally cultivated in tropical and sub-tropical countries for their roots, or flat underground corms, which abound in starch, and are used as food, being deprived by roasting or boiling of the characteristic acridity of the order, which, indeed, some of them have in only a small degree. They are sometimes included under the name *Yam*, but are totally different from the true yams. The names cocco, cocoa root, and eddoes, perhaps more strictly belong to *Colocasia antiquorum*, a stemless plant with ovate leaves, and flowers inclosed in a cylindrical erect spathe. The taste of its roots is like that of potatoes. *Colocasia esculenta* is a similar plant, native of tropical America, and is much cultivated. *Colocasia macrorhiza* is the tara (q.v.) of the South

Sea Islands. In the Himalaya, *C. Himalensis* forms the principal food of many of the inhabitants. The root in its recent state is stimulant, diaphoretic, and expectorant.

COCCOLITE, n. *kŏk'kō-līt*, or COCCOLITH, n. *kŏk'kō-lĭth* [Gr. *kokkos*, a berry; *lithos*, a stone]: in *geol.*, a variety of augite (q.v.) occurring in the iron-mines of Norway and Sweden in granular or berry-like concretions. Coccolith was also the name given by Huxley to minute oval or rounded bodies, found either free or attached to the surface of coccospheres, in submarine localities: see BATHYBIUS.

COCCOLOBA: see SEASIDE GRAPE.

COCCOMI'LIA, or COCUMIGLIA (*Prunus coccomilia*): species of plum, native of Calabria, and of which the bark —particularly of the root—is much used in that country for cure of intermittent fevers. Its valuable qualities have been strongly attested by Neapolitan physicians, and it is employed both in private practice and in military hospitals, but it has not come into use in other countries. The C has obovate leaves, short double flower-stalks, and austere tawny-yellow fruit.

COCCOSPHERES, n. plu. *kŏk'kō-sfērz* [Gr. *kokkos*, a berry; *sphaira*, a sphere]: spherical masses of sarcode, inclosed in a delicate calcareous envelope, varying in diameter from $\frac{1}{1300}$ to $\frac{1}{760}$ inch and bearing coccoliths upon their external surface: both coccospheres and coccoliths have been regarded by some as remains of lowly forms of life; but this view has not been established: see BATHYBIUS.

Coccosteus.

COCCOSTEUS. *kŏk-kŏs'tē-ŭs:* genus of fossil fishes, peculiar to the Devonian measures. It was nearly related to Cephalaspis (q.v.), but differed in having, in addition to the bony helmet of that genus, a cuirass covering both the dorsal and ventral aspects of the body as far down as the origin of the dorsal fin, from which to the tail—comprising more than one-half the entire length of the animal—all seems to have been exposed without the protection even of a scale. In a well-preserved specimen in the British Museum, the remains of the endo-skeleton can be detected. Seven species have been described from the bituminous schists of the Old Red Sandstone of the n. of Scotland.

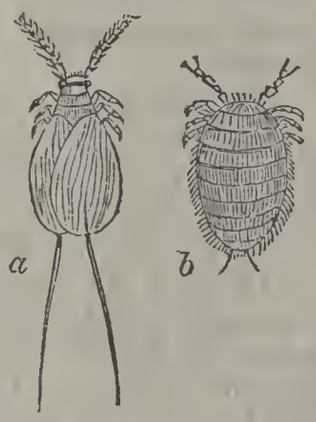
COCCOTHRAUS'TÉS: see HAWFINCH.

COCCULUS INDICUS, n. *kŏk'kū-lŭs ĭn'dĭ-kŭs* [L., Indian berry]: the fruit of a large tree, possessing narcotic and poisonous qualities; the fruit of the *Anāmir'ta cŏc'cŭlŭs*, ord. *Měnĭspermācĕæ*. COC'CULUS PALMA'TUS, *păl-mā'tŭs*, the plant from which the columba root is obtained; the root of the *Jatĕōrhī'zŭ pălmātă*, ord. *Měnĭspermācĕæ*. COC'CUS, or COC'CUM, n. [L., a berry used for dyeing]: in *bot.*,

applied to the close cells of plurilocular fruits which separate from each other when ripe. Coccid'ium, n. *-sĭd'-ĭ ŭm*, in *bot.*, a rounded conceptacle in algæ without spores, or containing a tuft of spores. Coccos'teus, n. *-kŏs'tē-ŭs* [Gr. *ostĕon*, a bone]: in *geol.*, a fish of the Old Red Sandstone, so termed from the berry-like tubercles studding its plates.

COCCULUS INDICUS, *kŏk'kū-lŭs ĭn'dĭ-kŭs:* name given commonly, and in the pharmacopœias, to a very poisonous seed, brought from the East Indies, which is used for various medicinal purposes and illegally in the preparation of malt liquors. It has acrid and intoxicating qualities. It is used in India for stupefying fish, that they may be taken by the hand. An ointment made with it is a very efficacious remedy for ring-worm. It contains a most poisonous principle, called *Picrotoxine*, while the pericarp contains another called *Menispermine*, equally poisonous. It is the seed of the *Anamirta Cocculus*, a beautiful climbing plant, of the nat. ord. *Menispermaceæ*. It imparts to beer a bitter taste, and at the same time a fullness and apparent richness, but renders it very deleterious in its effects. The genus *Anamirta* is closely allied to the genus *Cocculus* (see Calumba), in which it was formerly included. The fruit of several allied species possesses properties analogous to those of the *A. Cocculus*.

CO'CCUS: genus of insects of the order *Hemiptera*, sub-order *Homoptera*, type of a family, *Coccidæ*, allied to the *Aphis* (q.v.) family, although in many respects very distinct. The *Coccidæ* are sometimes called *Scale insects*, and by the French *gallinsectes* (Latinized by some entomologists into *Gallinsecta*), but they are not to be confounded with the insects called gall-flies (*Cynipidæ* or *Gallicolæ*), which produce *galls* or nut-galls. The *Coccidæ* are very numerous, and are attached to particular plants, on the juices of which they feed, often producing much mischief by the flow and loss of sap which their punctures occasion, and giving great trouble to gardeners, who find it very difficult to free their plants, particularly in hot-houses, from the *scale*, the *mealy bug*, the *vine-gall*, etc. Various washes consisting of soap, sulphur, tobacco, etc., are employed for this purpose; but moist heat, or as much exposure to steam as the plant can bear, has been found in many cases the most efficacious remedy. The destructive coffee-bug belongs to this family. The male *Coccidæ* are winged insects, having only two wings, which shut horizontally upon the body; the abdomen is terminated by two threads. The females are wingless. It is not well known how the males subsist, as they have no apparent organs for sucking juices or eating any sort of food. The females



Cochineal Insect (*Coccus cacti*): *a*, male; *b*, female.

have a beak, which they insert into plants in order to suck their juices. This interesting family of insects contains not only many troublesome species, but some which are of great value, particularly for the beautiful dyes which they yield. These dyes are obtained from the bodies of the female insects. Among them are cochineal (q.v.) and kermes (q.v.). A species of Coccus (*C. Polonicus*), which lives on the roots of the knawel (*Scleranthus perennis*), yields the Scarlet Grains of Poland, a considerable article of commerce before cochineal was introduced into Europe; and a species which feeds on the roots of the burnet (*Poterium Sanguisorba*) was in like manner used by the Moors for dyeing silk and wool of a rose color. Other species produce lac (q.v.) and wax: see Wax Insect.

COCCYX, n. *kŏk′sĭks* [Gr. *kokkux*, the cuckoo, imitation of its cry, a crest; *kokkūgos*, of the cuckoo: L. *coccyx*, the cuckoo; *coccy′gis*, of the cuckoo]: the terminal portion of the spinal column in man, commonly consisting of four rudimentary vertebræ, so called from its resemblance to a cuckoo's beak or bill. Coccygeal, a. *kŏk′sĭ-jē′ăl*, or *-sĭj′ē-ăl*, connected with the coccyx. Coccygeus, a. *kŏk′-sĭ-jē′ŭs*, applied to a muscle consisting of a thin, flat, and triangular sheet of fleshy and tendinous fibres connected with the coccyx.

COCCY′ZUS: see Cuckoo.

COCHABAMBA: department of Bolivia of which the city of Cochabamba is the capital; lat. 17°–19° s., long. 65° –68° w.; 21,417 sq. m. Besides the precious metals, it yields cotton, sugar, dye-woods, and timber. Pop. (1900) 326,163.

COCHABAMBA, *kō-châ-bâm′bâ:* city of Bolivia, on the Cochabamba river (one of the head waters of the Amazon); 145 m. n.n.w. of Chuquisaca. It has a temperate and healthy climate, and is engaged in the manufacture of cotton fabrics and glass wares. Pop. (1900) 21,886.

COCHIN, *kō′chĭn* or *kō-chēn′:* protected state of Hindustan under the presidency of Madras; lat. 9° 48′—10° 50′ n., long. 76° 5′—76° 58′ e.; 1,361 sq. m. With Malabar on its n.w. and n., and Travancore on its e. and s., it fronts the Arabian Sea on the s.w., and meets Coimbatore toward the n.e. on the water-shed of the Western Ghauts. Its hydrography is singular. The Western Ghauts, which have here an elevation of fully 4,000 ft., intercept the s.w. monsoon, and render the coast one of the most humid regions in the world during June, July, Aug., and Sep.; while even during the remaining eight months anything like an unremitting drought is unknown. As the space between the mountains and the sea is almost on a level with the tide, the countless streams have each two contrasted sections—the plunging torrent that breaks into comparatively short pieces the magnificent trunks of teak with which it is freighted; and the sluggish brook which, however it may vary, according to the season, in breadth and depth, almost uniformly results in a brackish estuary. Further, these

estuaries, almost continuously breasted by a narrow belt of higher ground, form between them a backwater or lagoon of 120 m. in length, and of every width between a few hundred yards and 10 m., which communicate at only three points with the ocean. The cocoa-nut is the most valuable product of the country; besides this tree, however, the forests produce red cedar, anjelly teak, benteak, and many other hard woods but these are now becoming very scarce. The low country produces rice, pepper, cardamoms, ginger, betel-nut, yams, arrow-root, and sweet potatoes. The population is peculiar in its composition, especially as compared with that of the most easterly parts of the peninsula. The great mass of the population are Hindus, but there are also Mohammedans, and a large number of Christians and Jews. The Jews are classified into white and black; and the Christians, divided between the Syrian and Romish Churches, trace their origin partly to the Portuguese conquest, and partly to the missionary labors of St. Thomas the apostle. Both the places of worship and the seminaries of education, throw light on the relative numbers of the different parties. The latter, 95 in all, are English, 5; Malayalam, 69; Tamul, 9; Mahratta, 1; Sanskrit, 7; Hebrew, 4. The former are—Hindu, 2,734; Mohammedan, 31; Jewish, 8; Christian, 108. Pop. (1901) 812,025.

COCHIN: formerly capital of the principality of Cochin, but now a seaport of the dist. of Malabar, presidency of Madras; lat. 9° 58′ n., and long. 76° 18′ e.; on the s. side of the principal channel between the open ocean and the backwater mentioned under the title of the principality of Cochin. As this lake, so to speak, is, even in its lowest state, always navigable for canoes, its value, as a means of communicating with the interior, can hardly be overrated in a country where roads and bridges are nearly out of the question. The harbor affords a depth of nearly 25 ft., but there is a bar in front, which according to the latest survey, has only between 17 and 18 ft. of water upon it. On this bar, during the s.w. monsoon, the surf breaks so violently that it is sometimes, though not often, impassable for vessels. Still Cochin is next to Bombay on this coast with respect to ship-building and maritime commerce. Here the Portuguese erected their first fort in India, 1503. They were supplanted by the Dutch, 1663—the epoch also of the transfer of Bombay to Charles II. In 1796, Cochin was captured by the British, and about ten years later, its fortifications and public buildings were destroyed, and its private dwellings very much damaged. Notwithstanding this check the place continued to flourish; many merchant vessels, ranging upward to 1,000 tons, have been built; and, besides ships of war for the local navy, three frigates have been launched for the imperial service. The population of the city is more heterogeneous than even that of the state of the same name, the additional elements being, Dutch, Armenian, Arabian, and Persian. Its trade depends almost entirely on the produce of the coca-tree—viz., oil and coca fibre. Water is brought from a distance of

18 m. Half a mile south is a town of the same name, in the native state of Cochin. Pop. about 18,000.

COCHIN CHINA, *kō′chĭn chī′na*, or ANAM: Asiatic state in the e. of the Indo-Chinese peninsula, now practically a French dependency; 10°–23° in. lat. and 102°–109° e. long., including Tonquin and Cochin China proper. It is bounded n. by China, e. by the Gulf of Tonquin and the China Sea, s. by Lower or French Cochin China, and w. by Laos, Siam, and Cambodia; 200,000 sq. m. Pop. estimated 21,000,000.

Physical Features.—A mountain range of considerable height runs through the country, parallel with the coast. The n. province of Tonquin is an extensive plain, through which flows the river Song-ca. Cochin China proper extends along the coast 11°–18° n. lat. The largest river of Anam, and indeed of the whole Indo-Chinese peninsula, is the Mekhong or Cambodia, which, rising in the mountains of China, flows through Laos and Cambodia, and after a course of some 1,500 m., separates into several branches, and finally discharges into the China Sea. The Song-ca, or Great river, of Tonquin, has an estimated course of 400 m.

The Hué, in Cochin China proper, flows through a fertile valley, and presents some of the finest scenery of Asia.

As to *climate* in Tonquin, the changes of temperature and weather are very sudden. Much rain falls in Cochin China during the whole summer, which produces a general inundation about the end of Oct. The months of Sep., Oct., and Nov. are the best suited to the European constitution.

Among the *agricultural productions*, rice, of which two crops are raised in the year, is chief. Potatoes, peas, beans, melons, and other vegetables, maize, tobacco, cotton, indigo, tea, and sugar also are grown. Considerable silk is produced. Valuable trees, such as the calumba, ki-nam or scented eagle-wood, ebony, rose-wood, iron-wood, sandal-wood, the varnish-tree, and many others grow on the mountains. The palm tribe and the bamboo are common in the low lands. The *mineral* riches of the country are very much neglected; but gold, silver, iron, copper, and coal exist, and are most abundant in Tonquin. The *domestic* animals are the elephant, Indian cow, buffaloes, pigs, goats, dogs, and cats. Fowls known in England and America as the Cochin China breed, so lately a rage in this country, ducks, geese, and pigeons, abound in every village. The most dreaded of the *wild animals* of Cochin China is the tiger. Elephants are very numerous in the forests of Tonquin; and leopards, wolves, bears, wild boars, the rhinoceros, as well as many kinds of apes and monkeys, infest the mountainous districts. Serpents and other reptiles are in great numbers. Of *birds*, eagles, peacocks, quails, partridges, paroquets, and wild ducks are among the most important. Fish of excellent quality swarm in the rivers and canals. Very many are taken on the sea-coast, and carried to every part of the country.

Inhabitants.—The Cochin Chinese, like the other peoples

of the Indo-Chinese peninsula, are characterized by a Mongolian physiognomy and a monosyllabic language. They are rather low in stature, but well proportioned, hardy, and active. The women have a lighter skin, and are altogether better-looking than the men. Their dress is the old national costume of the Chinese prior to the Tartar conquest. The Cochin Chinese are greatly addicted to smoking, and betel-nut is the universal masticatory. The civilization of this people has been derived from China; hence their religion and government, manners and customs, nearly approximate to the creeds, administrative system, and habits of that country. The selection of a place of sepulture is with them, a very grave consideration and the good or bad fortune of a family is supposed to depend upon it. Rice, with a sauce called balachiam, made of macerated salt fish, is the principal food of the Cochin Chinese; but they are very unclean feeders, no flying or creeping thing, whether bat, insect, or reptile, coming amiss. The national drink is tea; but a liquor made from rice also is in use. The common dwellings, which are raised two or three ft. from the ground, are made of bamboo, and thatch; but the better classes inhabit brick houses roofed with tiles. Women in Cochin China are allowed full liberty, and frequently engage in commerce and agriculture. They are kind to their children, and proud of a numerous offspring. Infanticide is unknown, but the poor sometimes sell the children that they cannot afford to keep. Marriages are regulated by law; and before they can be contracted the consent of the head of the family is required. Polygamy, or rather a system of concubinage, is allowed, but obtains chiefly among the rich. Divorce also is permitted. The laws against adultery are very severe, yet among single women little or no disgrace attends a breach of chastity. The law invests the creditor with the most arbitrary power over the property, wives, and family of his debtor.

Government and Administration.—These are after the Chinese model. The emperor is absolute, but he must govern according to the laws. He is assisted by a supreme council of high mandarins, seven of whom are his ministers. The government officials are divided into military and civil or literary mandarins. The former have the precedency; and from them the emperor selects his ambassadors, gov. generals, and viceroys. The learned and official language of the country is Chinese. For *administrative purposes*, the country is divided into provinces, departments, districts, and villages. A military gov. or viceroy, and two high civil mandarins, reside at every provincial capital; and the minor divisions have each their regular number of officials, who are appointed by the supreme government. The laws are very arbitrary. The bastinado system is in full force; indeed, the bamboo may be regarded as a political and social institution. The mandarins, as a class, are described as very corrupt. The cap. of the whole empire is Hué, or Huah. The foreign *commerce* of Cochin China is carried on chiefly with China, Bangkok, and Singapore.

COCHIN CHINA, LOWER.

History.—Previous to the Mongol invasion of China, Tonquin formed a part of that empire, but at that time it threw off its allegiance. The Anamitic sovereign still acknowledged the emperor of China as his superior, yet his vassalage became little more than nominal. The present inhabitants of Cochin China Proper are said to be descendants of political refugees from Tonquin. In 1774, a revolution in the former country deprived the reigning monarch, Ghialong, of his throne, but in 1790, assisted by some European adventurers, he not only re-established his power in Cochin China but added Tonquin to his dominions. In 1874, France guaranteed the independence of Cochin as against China; in 1883, occupied Tonquin, and made it a French protectorate; and by a treaty with Anam, 1884, practically reduced the empire to the position of a French dependency. The strenuous diplomatic opposition of China was at first overborne, but ultimately issued in war between France and China. See ANAM: FRANCE: also Veuillot's *La Cochinchine* (1859), Bouillevaux's *L'Annam* (1875).

COCHIN CHINA, LOWER, or FRENCH: colonial possession of France at the s.e. corner of the Indo-Chinese peninsula. This territory was acquired after a war provoked by the continuous persecution for many years of the Christians in his dominions by the king of Anam, and especially by the murder of several French and Spanish missionaries. After an invasion, the three provinces of Saigon, Bienhoa, and Mytho, together with the island of Pulo Condor, and a few others off the coast, were taken possession of by the French 1861. In 1867, a new treaty, formed after the repression of formidable hostile aggressions on the part of some of the natives, led to the annexation of other three provinces, thus completing the present colony of *Cochinchine Française*. Area, 22,900 sq. m. (in four provinces, Saigon, Mytho, Vinh-long, Bassac); pop. over 2,000,000.

Napoleon III. in urging on the vigorous war policy which led to this acquisition, had in view the tradition that France had earlier claims to be satisfied, and other wrongs to be redressed, than those which induced him and the Spanish government to resolve on putting an end to the oriental monarch's persecuting cruelty. In 1787, Ghialong, King of Anam, in want of assistance to secure his throne, entered into a treaty with Louis XVI., by which he engaged, in return for French aid, to cede the town and harbor of Touran (Kwang-han), with its territory and two adjacent islands. The little active assistance afforded by France was effective; Ghialong was established on the throne, and added Tonquin and Cambodia to his dominions. The promises made to France were not fulfilled, but her missionaries were protected. Of three kings, each excelled his predecessor in persecuting the Christians, whether Europeans or natives, and in murdering the missionaries. The blood of the victims never ceased to flow till the sanguinary struggles which led to the establish-

ment of the colony of Lower Cochin China frightened the bloodthirsty potentates into toleration.

Cambodia, a level country to the n.w. of French Cochin China, fertilized by the Mekhong, and formerly a sort of feudal dependency on Siam, was 1864 declared independent under the protectorate of France. Extensive explorations in the interior of Cambodia have brought to light stupendous monuments of an extinct civilization, rivalling those of Assyria and Egypt, but lost for ages amid the dense forests. Remains of extensive cities and carved stone figures attest a unique culture, and justify the belief that some 2,000 years ago the Cambodian empire was of enormous power and wealth. Most of the monuments betray Buddhist influences; and the centre of the empire lay without the present limit of Cambodia, where now wild tribes dwell on the borders of e. Siam and w. Anam. Apparently the subjects of the ancient empire were of the same stock as the present Cambodians, who, with European features and polysyllabic speech, are totally distinct from the surrounding Mongoloid populations, and seem to be of Caucasic stock. The national name of the Cambodians proper, as of the wild tribes adjoining, is *Khmer*. Latterly, the French have been making their influence more felt in the extreme n. of the peninsula, and in 1882 occupied the capital of Tonquin (Tong-king), the northernmost province of the Anamese empire.

Great exertions have been made by France to promote the prosperity of Cochin China, and to use its territorial influence in such a way as to acquire the good will of the natives. But that the colony pays its own expenses has not been made clear; and the French do acknowledge that their new subjects are neither industrious nor commercial. Although the resources of the country are imperfectly developed, rice is produced in considerable abundance; cotton, sugar, indigo, and tobacco also are cultivated. The dwarf mulberry grows freely; silkworms are reared with facility; hemp, the betel-nut, and the areca-nut are likewise grown.

COCHINEAL, n. *kŏch'ĭ-nēl* [Sp. *cochinilla*, a wood-louse —from L. *coccinĕŭs*, of a scarlet color—from *coccum*, a berry, from the resemblance of the insects to berries]: a dyestuff employed in dyeing scarlet and crimson, and in the preparation of carmine (q.v) and lake (q.v.). It consists simply of the bodies of the females of a species of *Coccus* (q.v.), called *C. cacti*, because it feeds upon plants of the *Cactus* family, particularly on one, therefore designated the Cochineal plant, but known in Mexico as the Nopal (*Opuntia cochinillifera*), figured in the article Cacteæ. This plant is nearly allied to the prickly pear. It assumes a somewhat tree-like form. Its fruit, though eatable, is very inferior to that of the prickly pear. It is a native of Mexico and other warm parts of Central and S. America, and is assiduously cultivated, for the valuable insect which it supports.

The Cochineal insect is a small insect with the body

wrinkled transversely; its abdomen of a deep mulberry color, and bristly in the posterior part; the legs are short and black, the antennæ subulate and about one-third the length of the body. The male has two erect wings, the female none. The principal district in which they are reared is in the province of Oaxaca, those of the district of Mestique being considered the best insects. Before the rainy season sets in, branches of the nopal covered with insects are cut off and brought under shelter to protect them from the weather. At the close of the wet season, about the middle of October, the plantations are stocked from these supplies by suspending little nests made of some soft woody fibre, each containing 8 or 10 females, upon the spines of the nopal. The insects, warmed by the sun, soon emerge and lay their eggs, each female producing more than 1,000 young. These spread rapidly over the plants, and as the young females become impregnated they attach themselves to the leaves and swell to great size, presenting the appearance more of vegetable excrescences than of animated creatures. In this condition they are gathered for the cochineal. The males, which are few in number, not more than one to 100 or 200 females, are of no value for this purpose. The females are picked off with a blunt knife, the first crop about the middle of December, and subsequently several more of as many successive generations, the last being in May. Those taken off full of young lose about two-thirds of their weight in the process of drying, to which they are subjected as soon as they are killed, which is done either by dipping them in a basket into boiling water, or placing them in a hot oven, or on plates of hot iron. By the first method, usually considered the best, the insects turn to a brownish red color, losing a portion of the white powder with which they were previously loaded between the wrinkles of the body. In the oven they retain this, and their color is then gray. Those killed on hot iron turn black. When dried, the cochineal presents the form of grains, convex on one side and concave on the other, about one-eighth of an inch in diameter, with the transverse wrinkles still visible. It is stated that it takes about 70,000 insects to weigh a pound.

COCHITUATE LAKE, *kō-chĭt′ū-at:* source of the water-supply of Boston; in Middlesex co., abt 17 m. w.s w. of Boston; area somewhat more than 1 m. square.

COCHLEA, n. *kŏk′lē-ă* [L. *cochlĕă*, the shell of a snail] the spiral cavity of the internal ear: see Ear.

COCHLEAR, a. *kŏk′lē-ėr* [L. *cochlĕăr*, a spoon]: in *bot.*, a kind of æstivation in which a helmet-shaped part covers all the others in the bud. Coch′lear′iform, a. *-ăr′ĭ-fawrm* [L. *forma*, a shape]: shaped like a spoon.

COCHLEA′RIA: see Scurvy-Grass.

COCHLEARY, a. *kŏk′lē-ėr-ĭ* [L. *cochlĕă*, the shell of a snail, a screw: Gr. *kochlos*, a shell-fish with a spiral shell]: having the form of a screw; spiral. Coch′leate, a. *-āt* or Coch′lea′ted, a. spiral; screw-like.

COCHLIODUS, n. *kŏk′lĭ-ŏ-dŭs* [Gr. *kochlĭas*, a cockle; *odous*, a tooth]: fossil fish-teeth found in the mountain limestone, having a cockle-shell-like aspect.

COCK, n. *kŏk* [an imitation of the cry: OF, *coc;* F. *coq* —from mid. L. *coccus*, a cock: Bohem. *kokot*, a cock]: the male of birds, particularly of the domestic fowl—fem. *hen*; a vane in shape of a cock. COCK′EREL, n. *-ėr-ĕl*, a young cock. COCK-CROWING, the early dawn; also COCK-CROW. COCK-PIT, area where cocks fight; in a *ship of war*, a room appropriated to the use of the wounded during an action; it is near the after hatchway under the lower gundeck, adjoining the surgeon's cabin and the nursery. COCK-AND-BULL STORY, a tedious, absurd tale; mere babble or boasting. EVERY COCK ON HIS OWN DUNGHILL, every one fights best at home, or with his friends to back him. COCK FIGHT, a battle between game-cocks. COCK OF THE WALK, lord and master of all; the conqueror and leader, as a cock over his hens when he has conquered his rivals.

COCK, v. *kŏk* [It *coccare*, to snap, to click—a word imitative of a quick sudden motion in rising or starting up: Gael. *coc*, to hold up, to stick up]: to stick abruptly up; to cause suddenly to project or stick up; to set up with an air of pertness, as the head or hat; to set or draw back the part of a gun which snaps or clicks; to strut: N. the part of a thing which sticks abruptly up; in a *balance*, the needle which vibrates to and fro between the cheeks; a twined or crooked spout to let out water at will (mid. L. *cochĭō*, a bung or bung-hole). COCK′ING, imp.: ADJ. sticking up stiffly. COCKED, pp. *kŏkt:* ADJ. turned up at the sides. COCKED HAT, a hat stuck up on one side of the head, then, a hat with stuck-up sides. COCK′ER, n. *-ėr*, small kind of spaniel, similar to the Blenheim dog, often black. Its size fits it for ranging in low and thick coverts, and it is much used by sportsmen in pheasant and woodcock shooting; but it must not be allowed to range to any considerable distance, as it cannot be trained to wait for the sportsman, but starts the game. COCK-SURE, erectly or stiffly sure; confidently certain, as a cock from its bearing when going to fight. COCKY, a. *kŏk′ĭ*, pert; saucy; quarrelsome. COCK-A-HOOP [F. *coq-à-huppe*, cock with the crest]: defiant and boastful, as a cock with crest erect, stuck up or impertinent; in high spirits. COCK-EYE, a squint eye. COCK-LAIRD, in *Scot.*, a small landed proprietor who puts on important airs as if a large one; also a freeholder who paid cocks and hens to a superior.

COCK, n. *kŏk* [Fin. *kokko*, a coniform heap, a hut: Dan. *kok*, a heap, a pile; Icel. *kökkr*, a lump; mid. L. *cucho;* OF. *cuche*, a conical heap (see COCK 2)]: a small heap of hay or reaped grain. COCK-LOFT, a room over the garret the room next the roof. COCKED, a. *kŏkt*, thrown into heaps.

COCK, n. *kŏk* [It. *cocca;* OF. *coque;* Dan. *kog;* Icel. *kuggi*, a small boat: mid L. *cogo*, or *cocco*, a boat or vessel: Fin. *kokka*, the prow of a vessel, being the part that sticks

up (see Cock 2)]: applied to a small boat. Cock'swain, or Coxswain, or Coxwain, n. *kŏk'sn* (familiarly spelled *coxen*): on board ship, a petty officer, the steersman of a boat, and commander of the boat's crew: he is expected to have his men always ready for service at short notice, and has a whistle to summon them.

COCK: properly name of the male of the common domestic fowl (see Fowl), but generally extended to the males of other kinds of gallinaceous birds, and frequently used as a distinctive appellation of the males even of some kinds of small birds.

The ancients regarded the domestic Cock as the companion of Mars, and in heraldry he is the emblem of strife, haughtiness, quarrels, and victory. Guillim has the following quaint eulogium on the cock: 'As some account the eagle the queen, and the swallow or wagtail the lady, so may I term this the knight among birds, being both of noble courage, and also prepared evermore to the battle, having his comb for a helmet, his sharp and crooked bill for a falchion to slash and wound his enemy; and as a complete soldier armed *cap-à-pie*, he has his legs armed with spurs, giving example to the valiant soldier to expel danger by fight, and not by flight. The cock croweth when he is victor, and giveth a testimony of his conquests. If he is vanquished, he shunneth the light and society of men.' The cock is said to have been the emblem of the ancient Gauls, who wore it on their helmets for a crest, and though the tradition does not rest on the authority of any medal or other monument, and is supposed to have been a mere play of words between Gallus, a cock, and Gallus, a Gaul, the cock was placed, after the Revolution, on the flags and ensigns of France. As the emblem of watchfulness the image of the cock was placed on the summit of church-steeples from a very early period. It is introduced by artists among the emblems of our Lord's passion, in allusion to the apostle Peter's sin, and for the same reason it is assigned to that apostle as his emblem.

Cock Divination, or Alectromancy, is a method of divining in which a young white cock was made the principal actor. The method was to describe a circle, and divide into as many equal parts as there are letters in the alphabet. Upon each of the spaces marked by its respective letter a grain of corn was placed; and the letters from which the fowl picked the grains, when put together formed the name of the person about whom inquiry was made.

COCKADE, n. *kŏk-kād'* [F. *coquarde*, a cap worn partly on the one side: Gael *cocadh*, standing erect—from *coc*, to stick up]: according to Wedgewood, originally a cocked hat, or a hat with the broad flap looped up on one side; thence applied to the knot of ribbon with which the loop was ornamented. Another view is, that it is derived from *coquart*, a beau; one fond of gay trappings. The word is now usually restricted to signify an appendage to the head-dress worn as a military or naval (and in some countries an ecclesiastical) distinction; sometimes.

however, grooms or serving-men wear such badges. Cock-ad'ed, a. provided with a cockade.

Badges of distinction were early had recourse to in party and civil warfare. A sprig of broom (*planta genista*) was the badge of the House of Plantagenet. In England during the wars between the Houses of York and Lancaster, the adherents of the former party were distinguished by a white and the latter by a red rose worn in the cap.

The party organized at the court of Charles IX. of France to perpetrate the massacre of St. Bartholomew, recognized one another by a paper cross. The faction of the *Fronde*, opposed to Cardinal Mazarin, wore stalks of corn for the same purpose; and certain military bands were called *Lances vertes*, from decorating their lances with green twigs. The use of cockades, as marks of distinction in campaigns and battles, became very general about the beginning of the 18th c. Eugene and Marlborough gave the Germans, English, and Dutch, composing their army, a tuft of corn or grass as their signal or cockade. The use of the cockade began to be more fixed in the war of succession. White being the color of France, and red of Spain, the two colors were united in the cockade of the combined army. At last, in 1767, an authoritative regulation determined that every French soldier should wear a cockade of white stuff; and in 1872, cockades were prohibited to all but soldiers. From this time till the revolution, the cockade was an exclusively military badge; and, both France and England, 'to mount the cockade' was synonymous with becoming a soldier. But in the enthusiasm of 1789, the citizens of France generally assumed the tricolored ribbon as the badge of nationality and patriotism, which was soon also given to the army. The three colors were blue, white, and red; white had long been the color of France and its kings; the blue is understood to have come from the banner of St. Martin, and the red from the Oriflamme (q.v.). Long before the revolution, the three colors were used in combination; they were given by Henry IV. to the Dutch, when they desired him to confer on them the national colors of his country, and have ever since been borne by the Dutch republic and kingdom of the Netherlands. At the restoration the white cockade of the monarchy again took its place, but had to give way once more to the tricolor, which continues to be the cockade of the French army.

Black, with some distinction enters into the cockades of the German nations. The Austrian is black and yellow; and the Prussian was black and white, abandoned for the black, yellow, and white of the German empire. After the German war of liberation 1813, a national cockade of black, red, and gold came into general use, and was afterward assumed by the military and by officials. The wearing of these German cockades was prohibited 1832 by a resolution of the German diet, but in 1848 they were again introduced, not only by patriots as a badge of German union, but into the armies. The national colors of

Belgium are black, yellow, and red. Cockades of these colors were worn by almost the whole population of Brussels on occasion of the constitutional festival, 1860, July 21. Cockades of green, white, and red are worn in Italy.

The continental cockade is generally in the shape of a flat disk, sometimes of metal, sometimes of silk or other stuff, with the colors disposed concentrically.

In England, the badge of the Stuarts was a white rose; and after the expulsion of the family, the white cockade became the distinctive mark of the adherents of the exiled family, in opposition to the orange of Nassau and the black of Hanover; it is a favorite theme in Jacobite songs. The great cockade, seen on the hats of many gentlemen's servants, was unknown in Britain till the accession of the House of Hanover, and was then introduced by George I. from his German dominions. It seems to be understood in that country that the right to use it belongs to naval and military officers, and the holders of some offices of dignity under the crown, including privy councilors, officers of state, supreme judges, etc.; but it is difficult to know where the line should be drawn, as the privilege is one of which the law takes no cognizance.

COCKATOO, n. *kŏk'-ă-tô'* [a word imitative of its cry: said to be a Malay word, *kakatuwah*, a vice, a gripe—from its strong beak], (*Plyctolophus*): genus of birds of the parrot family, or *Psittacidæ*, distinguished from parrots by the greater height of the bill, and its being curved from the base, and by the lengthened, broad and rounded tail. The head also is large, and in the true cockatoos is surmounted by a crest of long and pointed feathers, with their tips directed forward, which can be erected and expanded like a fan or depressed at the pleasure of the bird. The true cockatoos are also generally whitish plumage, but often finely tinged with red, orange, and other colors, or mixed with these colors in more brilliant display. But the name cockatoo is commonly extended to nearly allied genera, as *Calyptorhynchus* and *Microglossus*, in both of which the plumage is generally dark, and to which belong the *black cockatoos* of Australia and of the Indian archipelago. The genus *Microglossus*, to which belongs the Great Black Cockatoos, or Giant Cockatoo of New Guinea, is remarkable for the structure of the tongue, which is cylindrical, tubular, capable of being greatly protruded from the mouth, and terminates in a cloven, horny tip. All the cockatoos are natives of the regions already named. They abound in Australia. They live not only on fruits and seeds, but partly on insect larvæ. Some of them are frequently seen in confinement in Europe, particularly the Lesser Sulphur-crested cockatoo (*Plyctolophus sulphureus*), which, though of comparatively tame plumage, is a general favorite on account of its docility. None of the cockatoos learn to speak many words. Their name is derived from their own proper cry.

COCKATRICE, n. *kŏk'ă-trĭs* [Sp. *cocotriz;* OF. *cocatrice*, a *crocodile*, of which it is a mere corruption]: fabulous

monster, represented as a cock with a dragon's tail, supposed to be hatched by a cock from a viper's egg, or to be hatched by a toad from an egg laid by a very old cock; the belief in its existence prevailed among the ancients and during the middle ages. It was sometimes distinguished from, and sometimes identified with, the basilisk (q.v.). It was always regarded as possessing similar deadly powers. For protection against it, travelers in Africa are said to have carried with them its relative, the cock, the crowing of which caused it instantly to expire. The word cockatrice is sometimes used in the English version of the Old Testament; but all that can be affirmed of the meaning of the original Hebrew, is that it is the name of some venomous serpent, the term is applied sometimes to a beautiful, fascinating woman of bad character who lures men to their ruin; sometimes to a virago or female tyrant. In heraldry, the cockatrice is an imaginary monster, with the wings of a fowl and the tail of a serpent. *Note.*—COCKATRICE is derived by Dr. Charles Mackay, from Gael. *cocatreise*, that which stands powerfully erect—from *cocadh*, standing erect; *treise*, power, strength, thus connecting it with anc. *serpent-worship*, and worship of the *phallus*. The meaning of *cockatrice* differs little from *basilisk*, except in being oftener applied to females, the termination indicating a connection with the fem. termination *ess*.

COCKBURN, *ko'bėrn*, Sir ALEXANDER JAMES EDMUND, D.C.L., LL.D.: 1802–80, Nov. 21: jurist. His father was British minister to Colombia, his mother a lady of Santo Domingo. He studied at Cambridge, was called to the bar 1829, and made queen's counsel 1841. He represented Southampton in parliament 1847–56, and was recorder of that city and of Bristol. Having ably defended Lord Palmerston's foreign policy, he was knighted and made solicitor-gen. 1850, Aug. He was attorney-gen. 1851–56, chief justice of common pleas 1856–59, and (having become a baronet, 1858, on his uncle's death) chief justice of the court of queen's bench. His degrees were received from Oxford and Cambridge 1870 and '74. As the British member of the Geneva tribunal of arbitration 1871 for the settlement of the *Alabama* claims, he pursued a peculiar course, which was commented on by Caleb Cushing, one of the United States counsel, in his *Treaty of Washington*, 1873. Cockburn published his *Reasons for dissenting from the Decision*. The queen refused on moral grounds to permit his elevation to the peerage. He received the freedom of the city of London 1876, was chairman of the Cambridge Univ. commission 1878, and died in London.

COCKBURN, SIR GEORGE, Admiral: 1772, Apr. 22—1853, Aug. 19: b. London. He entered the navy at the age of eight, became a post-capt. 1795, contributed to the reduction of Martinique 1809, was thanked by the commons, and made rear admiral 1812. He ravaged the American coasts 1813, burnt many villages and farmhouses on the Chesapeake and elsewhere, and profited by the confiscation of slaves and cattle. 1814, Aug. 24, he and Gen.

Ross defeated a small United States force at Bladensburg, Md., entered Washington, and burned the capitol and other buildings. He carried Napoleon to St. Helena 1815; was returned to parliament for Portsmouth and made a lord of the admiralty 1818; vice-admiral 1819; privy councilor 1827; admiral 1837; senior naval lord 1841–46, and admiral of the fleet 1851. He succeeded to his brother's baronetcy 1851. He died at Leamington, Warwickshire.

COCKBURN, George Ralph Richardson, Canadian educator: b. Edinburgh, Scotland, 1834, Feb. 15. He graduated at Edinburgh University, 1857, and studied in France and Germany. He went to Canada in 1858, became rector of the Upper Canada Grammar School; was commissioned to inspect the higher educational institutions of the province, and study the subject in all its phases. The investigation lasted two years, and he presented its results in two able reports. In 1861 he was made principal of Upper Canada College, and a member of Toronto University senate. Under his administration of 20 years the college attained a high reputation for the excellence of its teaching and discipline.

COCKBURN, Henry, 1779, Oct. 26—1854, Apr. 26; b. Edinburgh: Scottish advocate and judge. Sent to the University of Edinburgh at the age of 14, his powers began to develop, and though never distinguished as a student, he became the companion of Brougham, Horner, and Jeffrey, from whom he imbibed liberal opinions in politics, greatly to the annoyance of the hereditary toryism of his family. He was called to the Scottish bar in 1800, and abt. 1807–11 held a minor appointment as prosecutor assistant in criminal courts. With the introduction of jury trial in civil causes into Scotland 1816, his professional employment first became remunerative. In pleading a cause he was extremely simple, clear, and impressive, at times humorous, at times pathetic, always unaffected, and with a convincing earnestness and candor. He was appointed, 1830, solicitor-gen. for Scotland, and four years later one of the judges of the Scottish supreme civil, and criminal courts, taking, according to custom, the title of Lord Cockburn. He died at his residence of Bonaly, near Edinburgh.

Cockburn contributed to the *Edinburgh Review* a few articles, of which those on Scottish law reform had considerable influence. In 1852 was published the life of Jeffrey, his beloved friend. Cockburn's *Memorials of his Time*, which appeared posthumously 1856, is his most noted work. It is a kind of autobiography, into which have been interwoven numerous anecdotes illustrating old Scottish life, and numerous sketches of the men who compose the brilliant circle of Edinburgh society at the beginning of the 19th c. A portion of the MS., kept back until a date further removed from the times of which it treats, appeared 1874, entitled *Journal of Henry Cockburn*.

COCKBURN, Sir John Alexander, Australian states-

man: b. Crosbie, near Duns, Scotland, 1850, Aug. 2. He was educated at Kings' College, London, and settled in South Australia in 1875. He sat in the House of Assembly as member for Burra in 1884, and for Mount Barker in 1887. He was minister of education 1885–7; premier and chief secretary 1889–90; chief secretary 1892; minister of education and agriculture 1893–8. He represented South Australia at the International Commercial Congress in Philadelphia in 1899, and at the Colonial Congress in Paris in 1900, as well as at other important conferences. He was knighted in 1900.

COCKCHAFER, n. *kŏk'chā-fėr* [*cock*, and AS., *ceafor*, a beetle], (*Melolontha vulgaris*): a beetle of the family *La mellicornes* (q.v.), and section *Phyllophagi* (leaf-eaters), famous for the ravages which it commits, both in the grub state and in that of a perfect insect, the winged beetle feeding on the leaves of fruit trees, and of many forest trees, as the sycamore, lime, beech, and willow, the grub devouring the roots of plants, particularly of pasture grasses and corn. It is called, also, May-bug or door-beetle. The cockchafer is fully an inch in length, of a pitchy black color, with a whitish down, giving a sort of powdered appearance; the sides of the abdomen marked by a range of triangular spots, the abdomen terminating in a point; the antennæ short, terminating in a club formed of six or seven leaflets. The grub is about an inch and a half long, thick, whitish, with a red head and six legs. The cockchafer does not live long after it has passed into its perfect state, but it lives nearly four years in the grub or larva state. The female cockchafer deposits her eggs in the earth The ravages of cockchafers were so great in some of the provinces of France in 1785 that the government offered a premium for the best mode of destroying them. The whole grass of a field has often been destroyed in a short time by their grubs, and the beetles themselves strip off the foliage of trees like locusts. They have sometimes appeared in prodigious numbers in some places in England; the river Severn is said to have been so filled with their bodies in 1574 that the water-wheels of the mills were clogged; and in 1688 they so abounded in the county of Galway, in Ireland, that they hung in clusters on the trees and hedges, like bees swarming; the noise of their countless jaws at work was heard by every traveller, and was compared to that of the sawing of timber.

COCKER, v. *kŏk'ėr* [OF. *coqueliner*, to dandle, to pamper: W. *cocri*, to fondle, to indulge; *cocr*, a coaxing: comp. Gael. *ciocharan*, an infant at the breast—from *cioch*, a woman's breast]: to pamper; to fondle and spoil, as a child. Cock'ering, imp.: N. fondling indulgence. Cock'ered, pp. *-ėrd*, daintily brought up; petted and spoiled, as a child.

COCKER: see under Cock 2. Cockerel: see Cock 1.

COCKER, *kŏk'ėr*, Edward: prob. abt. 1631 (or 2)—1671 (or between 1671 and '75); b. prob. in London: arithme-

tician. The first edition of his famous *Arithmetic* (which was the first to confine itself to commercial questions and which has served as the model for the majority of school-treatises in that department since) was published, after his death, 1677, by John Hawkins, who came into possession of Cocker's MSS.

COCKERELL, *kŏk'er-ĕl*, CHARLES ROBERT, R.A.: 1788, April 27—1863; b. London: architect. His excavation of the temple of Zeus at Ægina, 1811, contributed largely to the British Museum. He wrote monographs on the mausoleum of Halicarnassus and other archæological subjects. Advancing to the front rank of his profession he became an associate of the Royal Acad. 1829, a member 1836, and prof. of architecture 1839, delivering lectures which were highly esteemed and largely attended. As architect of the Bank of England from 1837, he conducted the alterations in its London house, and erected branch banks at Liverpool and Manchester. Among his other constructions were the new library at Cambridge, 1840, the univ. galleries at Oxford, 1845. The London and Westminster Bank, and the completion of St. George's Hall, Liverpool. He was happier in following classic models than in the Gothic style. He wrote on the *Iconography of Wells Cathedral*, on the *Sculptures of Lincoln and Exeter Cathedrals*, a *Tribute to the Memory of Sir Christopher Wren* (1838), *Descriptions to Michael Angelo* (1857), etc.

COCKERMOUTH, *kŏk'ĕr'mowth:* parliamentary borough in the w. of Cumberland, England, of the Cocker and Derwent, 25 m. s.w. of Carlisle. It is delightfully situated in an agricultural district, and has a promenade a mile long along the Derwent. The ruins of a castle, founded in the end of the 11th c., stand on a bold height on the left bank of the Cocker, near its junction with the Derwent. The castle was besieged for a month by the royalists 1648, and afterward reduced to ruins by the parliamentarians. Near Cockermouth is a tumulus, with a Roman camp and ditch, 750 ft. in circuit. Many ancient relics have been found near Cockermouth. There are manufactures of linens, woolens, cottons, hats, hosiery, and paper, and, in the vicinity, extensive coal mines. Wordsworth, the poet, was born here. Cockermouth returns one member to parliament. Pop. 5,355.

COCKET, n. *kŏk'ĕt* [F. *cachet*, a seal—from *cacher*, to hide or conceal, as that which serves to hide the contents of the letter]: an official seal; a written certificate, sealed, given by the custom-house officers to merchants to show that their merchandise has been properly entered.

COCK'-FIGHTING: act or practice of pitting cocks against one another; said to have originated with the Athenians. In the earlier part of English history since the conquest, little mention is found of it; but evidently it existed in the days of Thomas-à-Becket, and until the time of the commonwealth it flourished, the pit at Whitehall

having been erected and patronized by royalty. It was prohibited by Puritan legislation 1654; and other acts prohibitory of it have since been passed.

The greatest point considered in choosing cocks, is the breed. Formerly, there were established favorites, and very large sums were given for their chicks. Much art is said to be displayed in the training of cocks, and in trimming and preparing the cock for the combat; the fastening on of the spurs is a matter of importance. Young cocks are called stags; two years is the best age. In fighting a match, a certain number of cocks to be shown on either side is agreed on, and the day before the match, the cocks are shown, weighed to the greatest nicety, and matched according to their weights. Their marks all are carefully set down, to prevent trickery. The cocks within an ounce of each other in weight are said to '*fall in*,' and are matched. Those which do not fall in, are matched to fight what are called '*byes*.' Those which do fall in, come into the *main*. The main is fought for a stake upon each battle, and so much for the main, or the winner of the most battles in the main; while the byes have nothing to do with the main, and are usually fought for smaller sums Should the numbers be equal, so that the main cannot be decided, it is usual to separate two or more cocks which are matched to fight, and are of equal or a dead-weight, and to give or take an ounce either way with one of each of the birds which would fall into the byes, so as to make an uneven number.

A middling size is considered the best—from three lbs. six oz. to four lbs. eight oz. Cocks sometimes fight in silver spurs, but more often in steel. The laws of fighting are very precise and particular.

To lend to brutes the means of destroying each other, and of rendering their conflicts more deadly than nature ever intended them to be, is a degrading act, and the spectacle which it offers is only demoralizing. This sport, even in its lightest and least objectionable form, is cruelty. But the practice of placing a bird, that has perhaps been crippled in combat, down, without even his natural weapons, before a young stag armed, in order that the stag may be taught the art of killing, and the Welsh main, where the cocks fight until only one is left alive, are too disgustingly cruel to be thought of without indignation. C. continues in spite of legal prohibition.

COCK LANE GHOST: an absurd delusion which has become historical. In 1762, London was excited by the report of a ghost in the house of a Mr. Parsons, in Cock Lane, Smithfield. Strange and unaccountable noises were heard in the house, and a luminous lady, bearing a strong resemblance to one who, under the name of Mrs. Kemt, had once resided in the house, but who had died two years before, was said to have been seen. Suspicions as to Mr. Kemt having poisoned the lady were immediately aroused, and were confirmed by the ghost, who, on being interrogated, answered, after the fashion of the spirits of our own

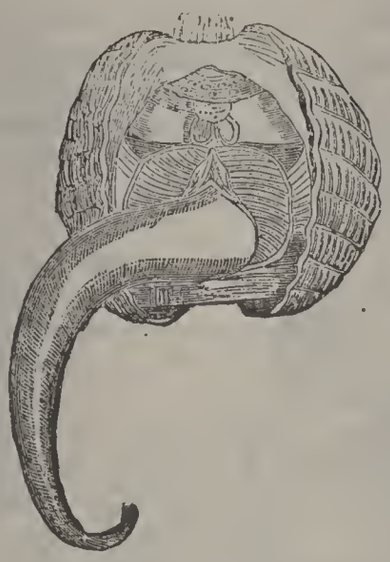
day, by knocking. Crowds, including Dr. Johnson, were attracted to the house to hear the ghost, and the great majority became believers. At length a plan was formed by a few skeptics to ascertain the real origin of the noises. The girl, from whom the sounds were supposed to proceed, was taken to another house by herself, and threatened with the imprisonment of her father in Newgate if she did not renew the rappings that evening, the noises having for some time been discontinued. She was observed to take a board with her into bed, and when the noises were heard, no doubt was entertained that they had all along been produced by similar methods. A prosecution was then raised by Mr. Kemt, and Parsons was condemned to stand thrice on the pillory for imposture and defamation.

COCKLE, v. *kŏk′kl* [Dut. *kokelen*, to deceive the eye by rapid movements of the hands: W. *gogi*, to agitate, to shake: Gael. *gog*, a nodding or tossing]: in *OE.*, to shake or wave up and down, as water; to be uneven; to shrink unevenly; to pucker. Cock′ling, imp. Cockled, pp. *kŏk′kld.*

COCKLE, n. *kŏk′kl* [Gael. *cogall*, tares, husks, the herb cockle: Ir. *cogal*, corn-cockle, beards of barley: OF. *coquiol;* Pol. *kakol;* AS. *coccel*, cockle], (*Agrostemma*): genus of plants of the nat. ord. *Caryophylleæ*, in which the flower has ten stamens and five styles; the five teeth of the leathery naked calyx are much longer than the tube of the corolla, and the capsule is perfectly 1-celled. The common cockle, or corn cockle (*A. Githago*), is a frequent weed among crops of grain, a native of Europe or the w. of Asia, but now to be found in almost all parts of the world. It is an annual plant, clothed with very long hair; with large, solitary, terminal lilac flowers. The root, stem, leaves, and seed were formerly used in medicine; the seed is still sometimes sold in Germany under the name of black cumin (schwartz-kümmel). The name cockle is applied generally to any wild flower or weed that grows abundantly among grain.

Corn Cockle.

COCKLE, n. *kŏk′kl* [F. *coquille*, a cockle—from L. *conchyl′ĭŭm*, a shell-fish: L. *cochlĕă;* Gr. *kochlos*, a snail, a shell-fish; Gael. *cochull;* Ir. *cochal*, a husk, a shell], (*Cardium*): genus of lamellibranchiate mollusks, having a shell ribbed or grooved on both sides, the sides being two equal ventricose valves, more or less of a heart-shaped appearance. The animal has two *adductor* muscles for drawing the valves closely together; its foot if remarkably large and bent in the middle, and is capable of



Cockle with Valves open, showing the Foot.

being suddenly straightened, so that the animal may move by a jump. Usually the foot is employed for excavating a hole in the sand or mud, in which the C. burrows; and when used for this purpose it is distended by being filled with water. Cockles are usually gregarious, and vast numbers are found on sandy and muddy banks. The common C. (*C. edule*) is very abundant on sandy parts of the British shores, and is a valuable shell-fish for food. The number of known species is about 200; most numerous within the tropics, particularly in the Indian ocean.—The genus *Cardium* is made the type of a family *Cardiadæ*, and of an order. *Cardiaceæ*, which includes *Veneridæ*, *Mactridæ*, *Tellinidæ*, and other families. COCKLE, v. to contract into folds or wrinkles. COCKLED, pp. *kok'kld*, having a turbinated or twisted shell. COCKLE-SHELL, the shell of the cockle; worn by palmers as a sign of their having performed the pilgrimage to the shrine of St. James at Compostello, in Spain. COCKLE-STAIRS, winding or spiral stairs.

COCKNEY, n. *kŏk'nĭ* [F. *cocagne*, a plentiful country, a Utopia where there is abundance without labor: OF. *coqueliner*, to cocker, to pamper]: one born in *Cocaigne;* an anc. nickname for a citizen of London—now applied by way of contempt; a person born in London; a town-bred person ignorant and contemptuous of familiar country things; a spoiled or effeminate child. *Note.* — COCKNEY seems to have indicated the opinions of rural minds that London must be the place of plenty and riches to all—the identical idea entertained by Whittington in the well-known nursery story. We have F. *cocagne* — from OF. *quaigne*, an imaginary land in mediæval mythology, in which the houses were made of cakes, and, by a natural extension, the streets paved with gold. Skeat says OE. *cokeney* (the oldest form of the word, trisyllabic, used of an effeminate person) resembles the W. *coeginaidd*, conceited, coxcomb-like—from *coegyn*, a conceited fellow: Gael. *goigeanach*, coxcomb-like, and that the true origin of cockney may after all be found in Welsh.

COCK OF THE PLAINS (*Tetrao* or *Centrocercus urophasianus*): largest of the N. American species of grouse. It is about one-third smaller than the European capercailzie (q.v.), or cock of the woods. Its plumage is dense and soft, the prevalent color yellowish-brown, but beautifully mottled and varied with darker tints; the under parts white, with dark streaks and patches. On each side of the neck is a large bare space, capable, when the bird struts,

of being inflated into a hemispherical sac. The female is smaller, and of less showy plumage than the male, and is destitute of the neck-sacs. This bird is an inhabitant of the plains on the upper parts of the Columbia, and in the

Cock of the Plains.

interior of California, living in flocks, and often feeding so much on *Artemisia* that its flesh is almost too bitter to be eaten.

COCK OF THE WOODS: see CAPERCAILZIE.

COCKRELL, FRANCIS MARION, lawyer, soldier, and statesman: b. 1834, Oct. 1, in Johnson co., Mo. After a preliminary course in the common schools, he entered Chapel Hill College, Lafayette co., Mo., whence he was graduated in 1853. He then studied law, and on his admission to the bar commenced practice at Warrensburg, Mo. At the outbreak of the Civil War he joined the Missouri State Guard, which coöperated with the Confederate troops, as captain of a company. His term of enlistment was for six months, and at the end of that time he entered the Confederate service for the war, retaining the same rank which he had held in the State Guard. He was soon promoted to the command of a Mo. regiment, which became noted for the excellence of its discipline and its stubborn fighting qualities. By subsequent promotions he reached the rank of brigadier-general, and was assigned to the command of a brigade of Mo. troops. At the battle of Corinth, 1862, Oct. 3, he was struck on the leg by a fragment of shell and a bullet grazed his throat, cutting away his whiskers, but the skin was not fractured in either instance and he was not reported in the list of wounded. During Hood's ill-advised and rash assault on the Union works at Franklin, Tenn., 1864, Nov. 30, C. was thrice wounded and had to be carried off the field. In the operations around Mobile, near the close of the war, he commanded a divi-

sion and was everywhere distinguished for gallantry and efficiency. In 1875 he was elected to the U. S. Senate from Missouri, succeeding the distinguished German, Carl Schurz (q.v.), and by successive reëlections he served continuously in that body until 1905, a period of thirty years. His urbanity and unfailing courtesy won the respect of all his associates, while his remarkable industry and absolute sincerity of character made him indispensable in the business of the Senate. On his retirement President Roosevelt manifested the general esteem of the public by making him the extraordinary offer of his choice of two prominent positions, that of a member of the Isthmian Canal Commission, or of the Interstate Commerce Commission, and he chose the latter.

COCKROACH, n. *kŏk'rōch* [corrupted from Sp. *cucaráca*, a cockroach], (*Blatta*): any of the species of *Blatta* or allied genera, belonging to the family *Blattidæ*, order *Or-*

Cockroach—Male and Female.

thoptera. The body of the cockroach is much flattened, being adapted to life under the bark of trees, under stones, in cracks, etc. The four wings are much alike in size and net-veined; the antennæ are long and slender, and to the end of the body are appended many-jointed antenniform limbs which contain olfactory organs like those in the joints of the antennæ. Cockroaches are hatched in nearly the same form as the parent, differing mainly in not having wings. The eggs are deposited in a bean-like case (*oötheca*), which is divided into two compartments, each containing about 30 eggs; these egg-sacs are carried about for some time by the female, projecting from the end of her hind-body. One small native species (*Platymodes pensylvanicus*) lives under stones, but the species so abounding in our homes have been introduced from the Old World. The peculiar odor given out by cockroaches is expelled from glands in the hind-body, and either present in both sexes, or only in the males. In the croton bug, or common small cockroach of our cities, these glands are

very large, giving out a fœtid odor, and occur only in the males.

While nearly a thousand species of blattids are known to be now living and 200 fossil species are described, mostly from Palæozoic strata, chiefly the carboniferous slates, several forms are household pests. They swarm in our kitchens, spreading through those parts of the house warmed by hot water or steam pipes, and are troublesome from eating clothing, cereals, devouring the paste in bindings of books; they also abound in ships, where they devour ship biscuit, etc., impregnating the pantry with their disagreeable odor. On the other hand, the cockroach is an enemy of the bed-bug, doing great service in reducing their numbers. The development of the cockroach is slow and the number of eggs deposited not great. *Phyllodromia germanica*, the German roach, or croton bug, reaches maturity in from four and a half to six months.

Of the many species known the most annoying is the German roach, whose native country is, however, not known, though supposed to have had an eastern origin. The Oriental cockroach (*Periplaneta orientalis*) is derived from tropical Asia, and is supposed to have been introduced into Europe two or three centuries since. The female is nearly wingless, it is a large dark brown species, living in colonies. The best remedies are insect powder, phosphorus paste, and a proprietary substance called German snow-flake powder. Persian powder (*lycopodium*) scattered freely in all corners of rooms and closets, and in all holes, is disagreeable to them, and often drives them away. Borax in fine powder plentifully blown by a small bellows (sold for the purpose) into all crevices in floors, will drive away the common cockroach and its frequent companion, the 'waterbug.' But the insect has migratory habits, and may return to a house suddenly, unless the borax be applied repeatedly—say, once a month.

COCKSCOMB, n. *kŏks'kōm* [from Cock 1]: the red fleshy substance on the head of a cock. Coxcomb, n. *kŏks'kōm*, a fop; a vain silly fellow.

COCKS'COMB [see Cock 1], (*Celosia cristata*): annual plant of the nat. ord. *Amarantaceæ*, native of the E. Indies, familiar inmate of conservatories, often, also planted out in gardens. It grows with an upright stem, which becomes flattened upward, divides, expands, and forms a sort of wavy crest, covered with pointed bracts, and bearing on its surface many very small flowers so crowded as often to present a rich velvety appearance, somewhat like the comb of a cock. The colors are various, and often very brilliant.

COCKSWAIN or Coxwain, n. *kŏk'sn*, but often Coxen or Coxun, n. *kŏk'sn* [from *cock*, in the familiar slang sense of a petty chief: Eng. *swain*, a young man, a rustic]: the steersman of a boat who has the command in the absence of an officer: see under Cock 4. *Note.*—This petty officer on board ship is said to be so named because his steering

was influenced by the position of the weather-cock which, in former times, was a prominent object on a vessel.

COCKTAIL, n. *kŏk'tāl* [see COCK 2, and TAIL]: half-bred or under-bred, said of a horse.

COCLES, *kō'klēz*, HORATIUS: hero of ancient Rome, celebrated by Livy (ii. 10) and in Macaulay's lays. When Lars Porsena was about to take the city, A.U.C. 246 (about B.C. 507), Cocles saved it aided by Spurius Lartius and Titus Herminius, by holding the Sublician bridge against the whole Etruscan army. When the bridge was nearly hewn down, he sent his comrades back, and continued the fight alone; when it fell, he committed himself to 'Father Tiber,' and, wounded, swam with his arms to the farther bank. His statue was erected in the comitium, and as much land granted him as he could plow round in a day. According to less pleasing tradition, he fought alone and lost his life. Livy admits that his exploit 'in after times was more generally celebrated than believed.'

COCO, n. *kō'kō:* a variety of monkey, so called from its cry.

COCOA, n. *kō'kō* [Port. *coco*, an ugly mask to frighten children, so called from the monkey-like face at the base of the nut], (the now common way of spelling CACAO): substance of different kinds consisting of, or prepared from, the seed of trees of the genus *Theobrōma*.

The genus *Theobrōma* [Gr., food of the gods] belongs to the nat. ord. *Buettnerieæ*, and contains a number of species, trees of moderate size, with large, undivided leaves and clustered flowers, all natives of tropical America. It is distinguished by a 5-leaved calyx; five petals, concave at the base, and extended into a strap at the apex; the stamens united at the base into a cup, which is divided upward into ten segments, five tips being without anthers, and the other five, alternate with them, bearing two anthers each; a thread-like style, terminating in a 5-partite stigma; the fruit a 5-angled capsule, of a substance between leathery and woody, not splitting when ripe, 5-celled, and containing many seeds in a pap-like or butter-like pulp. The seeds of several species yield more or less of the cocoa of commerce. By far the most important species of this genus is *T. Cacao*, to which the name cocoa tree is often exclusively appropriated. It is extensively cultivated in tropical America and the W. Indies, and its cultivation has been introduced into some parts of Asia and Africa. The trees grow to a height of from 20 to 30 feet and the base of the trunk is from 8 to 10 inches in thickness. They are raised from fresh seeds which are planted in rows about five yards apart. They begin to bear in the sixth or seventh year and in the tenth year reach full maturity. The blossom is very small, pinkish white, and waxlike in appearance. It grows directly out of the main trunk and branches. If it fructifies, the petals fall off, and from the stamens, in the course of from fifty to seventy days, an oblong pod is developed. This pod is of golden color, and

contains some twenty to thirty-five grains of cacao, enveloped in a gummy liquid, which coagulates on exposure to air. The outer rind of this pod is dark or golden yellow in color and very hard.

The fully ripened pods are detached from the tree with a long pole armed with two prongs, or a knife at its extremity. The pods are left in a heap on the ground for about twenty-four hours; they are then cut open and the seeds are taken out and carried in baskets to the place where they undergo the operation of sweating or curing. There the acid juice which accompanies the seeds is first drained off, after which they are placed in a sweating box, in which they are enclosed and allowed to ferment for some time, great care being taken to keep the temperature from rising too high. The fermenting process is, in some cases, effected by throwing the seeds into holes or trenches in the ground, and covering them with earth or clay. The seeds in this process, which is called "claying," are occasionally stirred to keep the fermentation from proceeding too violently. The cocoa is brought into the market in its crude state, as almond-shaped seeds which differ in color and somewhat in texture. They are first cleaned and then roasted, great care being taken to secure a uniform effect. By the roasting the shell becomes more readily detachable, and its complete removal is the next step. The crushing of the seeds into small fragments is easily accomplished; and this is followed by a thorough winnowing, by which the lighter shells are carried away by themselves, leaving the clean fragments of the roasted seeds ready for further manipulation.

The clean shells are used for the preparation of a wholesome and very low priced drink. The cracked cocoa or coarsely ground product of the roasted seeds is called "cocoa nibs" or cracked cocoa; the finely pulverized product of the roasted seeds from which a portion of the fat has been removed in order to make it more digestible and prevent it from caking, is called "breakfast cocoa" or "powdered cocoa." In the preparation of chocolate (q.v.), the fragments are ground by a complicated mechanism until they attain the highest degree of fineness, and constitute a perfectly homogeneous mass or paste without removing any of the fat.

Cocoa is very nutritious. The principal constituent of cocoa beans is the soft, solid oil called *Cocoa butter*, which forms more than 50 per cent. of the whole shelled bean, about 22 per cent. being starch, gum, mucilage, etc., and 17 per cent. being gluten and albumen. They contain also a crystallizable principle called *Theobromine*, analogous to caffeine (q.v.), but more nitrogenous. The cocoa butter is, when pure and freshly extracted, of a pale, yellow color. Its consistency is about that of tallow. It is insoluble in water; completely soluble in sulphuric ether and the essential oil of turpentine. It is used very extensively in the manufacture of confections, and by pharmacists as the basis of pomades and ointments.

COCOA-NUT.

CO'COA-NUT, or Co'co-nut: the large nut which is the well-known fruit of a species of palm, *Cocos nucifera*, perhaps originally native only of the Indian coasts and South Sea Islands, but now diffused over all tropical regions. The C. palm belongs to a genus having pinnate leaves, and male and female flowers on the same tree, the female flowers at the base of each spadix. The genus is distinguished further by a simple 3-celled ovary, which is succeeded by a coarse, fibrous, 1-celled drupe, two of the cells becoming abortive. There are about 18 known species, all natives of S. America, except the most important, the C. palm itself. The American species prefer dry and somewhat elevated districts. The C. palm, on the contrary, is seldom found at any considerable distance from the sea-coast, except where it has been introduced by man, and generally thrives best in sandy soils near the sea.

Crown of Cocoa-nut Palm with Fruit.

It is always one of the first of the larger plants to establish itself in the low islands of the Pacific ocean, so soon as there is soil enough. It has a cylindrical stem, about two feet in diameter, and from 60 to 100 ft. high, with many rings marking the places of former leaves, and bearing at its summit a crown of from 16 to 20 leaves, which generally curve downward, and are from 12 to 20 ft. in length. The flowers proceed from within a large pointed spathe; the fruit grows in short racemes, which bear, in favorable situations, from 5 to 15 nuts; and 10 or 12 of these racemes, in different stages, may be seen at once on a tree, about eighty or one hundred nuts being its ordinary annual produce. The tree bears fruit in from seven to eight years from the time of planting, and continues productive for 70 or 80 years. Of the three round black scars at one end of the shell, the one which alone can be easily pierced with a pin, and through which an opening is commonly made to get out the *milk*, is the destined outlet of the germinating embryo, which is situated there, the kernel consisting generally of the albumen (q.v.) destined for its nourish-

ment. The thick husk is remarkably adapted to the preservation of the seed, while the nut is tossed about by the waves, until it reaches some shore far away from that on which it grew.

The C. affords to the inhabitants of many tropical coasts and islands great part of their food; it is eaten not only as it comes from the tree, both ripe and unripe, being filled in a young state with a pleasant milky fluid, but is also prepared in a variety of ways, as in curries, etc.

The kernel of the C. contains more than 70 per cent. of a fixed oil, called C. Oil, or C. Butter. The oil is itself an important article of commerce, being much employed in Europe, particularly for the manufacture of *Stearine candles;* and also of a *marine soap*, which forms a lather with sea-water. In tropical countries, and particularly in the east, it is much used as a lamp oil, and as an unguent. It is also employed as an article of food, so long as it remains free from rancidity, to which, however, it is very liable. It is obtained by pressure of the bruised kernel, or by boiling over a slow fire, and skimming off the oil as it floats on the surface. A quart, it is said, may be obtained from seven or eight cocoa-nuts. It is liquid in the ordinary temperatures of tropical countries, but in colder climates, becomes a white, solid, butter-like oil. It becomes liquid about 74° F. It can be separated by compression in the cold into a more liquid portion called *oleïn*, and a more solid part termed *cocostearin*, or *cocosin*, which is of complex constitution, and contains at least six fatty acids. C. oil is not a good lamp oil, as it chars on the wick, and burns with smoky flame. This remark applies also to the *oleïn* obtained from it, which, however, is used mixed with sperm oil, but it lowers the value of the sperm oil. C. oil and resin melted together yield a substance capable of being used with success in filling up the seams of boats and ships, and, in tropical countries, for covering the corks of bottles, as a protection from the depredations of white ants.

The root of the C. palm has narcotic properties, and is sometimes chewed instead of the areca-nut.—When the stem is young its central part is sweet and eatable; but when old this is a mass of hard fibre.—The terminal bud (*Palm cabbage*) is esteemed a delicacy, and trees are often cut down for the sake of it.—The saccharine sap (*toddy*) of the C., as of some other palms, is an esteemed beverage in tropical countries, either in the state in which it is obtained from the tree, or after fermentation, which takes place in a few hours; and from the fermented sap (*palm wine*), a spirituous liquor (*arrack*) is obtained by distillation. The juice is often also in the East Indies boiled down to yield sugar (*jaggery*).

The dried leaves of the C. palm are much used for thatch, and for many other purposes, as the making of mats, screens, baskets, etc.. by plaiting the leaflets. The midribs of the leaves supply the natives of tropical coasts with oars.—The wood of the lower part of the stem is very hard, takes a beautiful polish, is employed for a great variety of purposes, and is exported to Europe for ornament-

al joinery, under the name of PORCUPINE WOOD.—The fibrous centre of old stems is made into cordage.—By far the most important fibrous product of the C. tree is COIR (q.v.), the fibre of the husk of the imperfectly ripened nut. The husk of the ripe nut is used for fuel, and also, when cut across, for polishing furniture, scrubbing floors, etc.

The shell of the C. is made into cups, goblets, ladles, etc., and is often finely polished and elaborately ornamented by carving.—Within the nut there is occasionally found a small stony substance of a bluish-white color, 'a sort of vegetable bezoar,' called an Indian *Calappa*, which is eagerly purchased by the Chinese, who ascribe great virtues to it as a sort of amulet to preserve them from diseases.

Cocos butyracea, one of the S. American species of this genus, is a very large tree, and its nut abounds in an oil and butter of similar quality to that obtained from the cocoa-nut.—The DOUBLE C. of the Seychelles Islands is the fruit of a palm of a different genus.

COCOA-NUT BEETLE (*Batocera rubus*): large beetle of the family *Longicornes* (q.v.), tribe *Lamiariæ*, the larvæ of which are very destructive in cocoa-nut plantations, eating their way in all directions in the stems of the younger trees. They are destitute of feet, large and pulpy, and of repulsive aspect; but are esteemed as a luxury by the coolies of the East. They resemble the *grugru worms* of S. America.

COCO-MARICOPAS, *kō'ko-măr-ē-kō'paz*, or MARICOPAS: Indian tribe of Arizona. Originally living on the Colorado river, they were found, 1775, on the Salinas. They are now settled with the Pimas on a reservation 25 m. long and 4 m. wide on the Gila, and occupy a valley about lat. 33° 10′ n., long. 112° w., intersected by canals cut from the river. By this irrigation they raise wheat, maize, and vegetables, which form most of their diet; though they have horses, mules, and cattle, they chiefly use the hoe. Their houses, 5 to 7 ft. high and 15 to 25 ft. across, are made of stakes, poles, cornhusks and straw, each having a shed and granary, and surrounded by gardens and fields fenced with stakes and brush. They raise good cotton, which they spin and weave into blankets, cloths for the loins, and bands for the waist or head; these, with raw-hide sandals, constitute their only clothing, and are worn but moderately. They produce ornamented cups, vases, jars, and basins, similar to those found in ruins of New Mex. Their hair is cut or 'banged' in front, and never tied; the women are tattooed in two blue lines from the corners of the mouth to the chin. They believe in a great spirit, and expect to be changed after death to birds and animals on the Colorado, and to keep up their ancient feuds. Their language is different from that of the Pimas, and allied to that of the Yumas and Comeyas. Their numbers are small and dwindling.

COCOON, n. *kō-kōn'* [F. *cocon*—from L. *concha*, a shell]: the round silken envelope which the larvæ of the silk-worm and of many other insects spin for themselves im-

mediately before their transformation into the pupa state, and which serves for the protection of the inactive and helpless pupa. The name is sometimes extended to coverings formed of other materials, by agglutination or otherwise. Many insects mix foreign materials of various kinds with their silken cocoons; some caterpillars, as those popularly called *wooly bears*, working into them the hairs with which their own bodies were previously covered; and others fastening together the sides of a leaf or of several adjacent leaves. Some of the moths, which attach their silk to leaves, so that the leaf itself forms part of the protective covering of the pupa, proceed with a mathematical nicety as to the position and direction of their threads, more wonderful, if possible, than even that exhibited by bees in the building of their comb. The silken substance of which cocoons are made, is produced much more abundantly by some kinds of larvæ than by others; the cocoons of some being only an open network, while others form a compact ball. The C. of the common silk-worm shows externally a loose gauze-like covering, within which is a close and compact oval ball; yet all is of one continuous thread, which may be unwound from it 1,000 ft. long. Different parts of this thread are of different qualities, but the stronger part of it may be unwound as easily as a ball of cotton. The insect works from the outside inward, and the outer parts of the C. are produced first. The spinnerets by which the C. of the silk-worm and those of other moths are produced, are situated at the mouth of the caterpillar; but the larvæ of a few insects—not lepidopterous—have them at the opposite extremity of the body. The time occupied in spinning the C. is very various in different insects; in the silk-worm, it extends to several days.—Cocoon is also a chitinous capsule in which a leech or earth-worm deposits its eggs; the silken case which a spider weaves for its eggs. COCOON'ERY, n. *-ĕr-ĭ*, a building where silk-worms are fed while preparing to envelop themselves in cases or cocoons.

COCTION, n. *kŏk'shŭn* [L. *coctĭōnĕm*, a digestion]: the act of boiling. COCTILE, a. *kŏk'tĭl*, made by baking or heat.

COCUM OIL, *kō'kum:* solid oil or vegetable butter, obtained from the seeds of *Garcinia purpurea*, an Indian tree of the same genus with the mangosteen. It is white or pale greenish yellow, brittle or friable, with a faint and not unpleasant odor. It melts at 95° F., but when cooled after being melted, remains liquid to 75° F. It is used for mixing with ghee (butter), and is exported to Europe and elsewhere for mixing with bear's grease in the manufacture of pomatum.

COCYTUS *kō-sī'tŭs:* name given by the ancients to a river of Epirus, fed by the snows of Pindus, and which, after a long underground course, was regarded as falling into the Acherusian lake: see ACHERON.—Cocytus was also the name of a river of the infernal regions, a branch of the Styx.

COD, n. *kŏd* [Icel. *koddi*, a cushion: Sw. *kudde*, a sack

W. *côd*, a bag]: any husk or case containing the seeds of a plant; a pod. Cod'ded, a. inclosed in a cod, as in beans or peas.

COD, n. *kŏd* [Flem. *kodde*, a club—from its large club-shaped head], (*Gadus Morrhua*, or *Morrhua vulgaris*): a fish of the family *Gadidæ* (q.v.), almost rivalling the herring in importance to mankind. The genus to which it belongs is distinguished by having three dorsal fins, two anal fins, and a barbule beneath the chin. The cod sometimes attains a weight of 100 lbs.; but even from a small size, it is in request for the market and the table. The roe of the female has been estimated to contain from four to nine millions of eggs, a reproductive power which seems beneficently intended to provide supply for far more extensive fisheries than are yet carried on. The cod is found in all the n. parts of the Atlantic ocean, and in the Arctic seas. It is not known in the Mediterranean. It occurs both on rocky coasts and on sandbanks, where the largest are usually caught in depths of 25 to 50 fathoms. The productiveness of the great banks of Newfoundland excels that of all others, but the cod-fisheries near the coasts of Sweden, Iceland, and the n. of Scotland also are important. The Dutch were engaged in the cod-fishery as early as the middle of the 14th c., and the English resorted for this purpose to the coasts of Iceland about the same period. The French also have engaged largely in the cod-fishery. More than 6,000 European vessels are said to be employed in it, besides boats along the shores. The fishery is always carried on by means of lines and hooks, partly by *long-lines*, partly by *hand-lines*. One man has been known to catch from 400 to 550 fish, on the banks of Newfoundland, in 10 or 11 hours; and eight men to take 1,600 in a day on the Dogger Bank. The cod is very voracious. Small fishes, shell-fish, etc., are used for bait. The cod is used as food, either fresh, salted, or dried. Great quantities of dried cod are carried from Newfoundland to the W. Indies, and are consumed also in the Rom. Cath. countries of the s. of Europe. *Cod sounds* are esteemed a delicacy, and are often salted and so sent to market. They are also dried and used as isinglass. The discovery of the medicinal value of cod-liver oil (q.v.) has added to the economic importance of this fish.

Rock Cod and Red Cod are names given to the common cod when its color is somewhat affected by living among weedy rocks.—A young cod is called a *Codling*.—Baltic Cod is a name of the dorse (q.v.).

CODA, *kō'da*, in Music: ending of a composition by an extra melodic phrase, for more completely establishing the final cadence. It may be compared to the peroration of an oratorical discourse.

CODAZZI, Agostino, *â-gōs-tē'no kō-dât'sē*. Italian engineer: b. near Ferrara 1792; d. Colombia, 1859, June. He made several campaigns under Napoleon, and afterward distinguished himself as an engineer in South America. He

entered the Colombian service with the rank of lieut.col. of artillery, and was employed in making charts and in preparing plans of defense. In 1831 he was appointed by Paez to repare partial charts of the new republic of Venezuela. This work occupied nearly nine years, and was twice interrupted by military defensive expeditions, in which Codazzi took part. He was rewarded with the rank of colonel. He devoted the years 1838–9 to exploring the wilderness of Guiana, and penetrated nearly to the sources of the Orinoco. The important additions to geography which were obtained from this expedition induced the congress of Venezula to furnish him means to make public the result of his labors. For this purpose he went to Paris, where his work appeared in 1841, entitled *Resumen de la Geografia de Venezuèla*, accompanied by an extensive chart of Venezuela. Codazzi afterward established a German colony in Venezuela. In 1848 he was employed by the Government of Colombia in a topographical survey of that country.

CODDINGTON, *kŏd'ĭng-ton*, WILLIAM: 1601–78. Nov. 1; b. Lincolnshire: a founder of R. I. He emigrated in Winthrop's party 1630, and was a magistrate of Boston till 1637, and then deputy to the court. Sympathizing with Vane, Wheelwright, and Mrs. Hutchinson, he left with a party of 18, and under Roger Williams's advice settled Aquidneck. He was gov. of the island 1640-47, till it was incorporated with Providence plantations. Disliking this union, he sought to obtain independence; going to England, 1649, he obtained from the council, 1651, a commission as gov. of the islands of R. I. and Conanicut. This was revoked through the interception of Williams, 1652, Oct., but C. would not surrender the records or submit till 1655, and was for some time in disfavor. He became a Quaker 1665, and was elected gov. 1674-75 and 1678. He published a *Demonstration of True Love unto you the Rulers of Mass.* (1674). The R. I. *Hist. Tracts*, No. 4 (1878) narrate his connection with the colony.

CODDLE, v. *kŏd'dl* [OF. *cadel*, a starveling: L. *catulus;* Prov. *cadel*, a whelp: Gael. *cadail*, to sleep; *codail*, to put to sleep]: to nurse a sick ailing one constantly and fondly; to pamper or treat delicately; to parboil; to soften by means of hot water. CODDLING, imp. *kŏd'lĭng*, CODDLED, pp. *kŏd'ld*. CODLING, n. *kŏd'lĭng*, or COD'LIN, n. *-lĭn*, an apple fit for boiling or baking, the trees bearing these varieties of apple, are often propagated by layers or suckers or even by slips; and trees thus obtained become fruitful much sooner than grafted trees. CODLING (or CODLIN) MOTH, a small moth sometimes very injurious in apple-orchards, laying its eggs in the eyes of the newly formed fruit, within which the larva feeds, causing the premature fall of the fruit; the moth is the *Pyralis pomona*, one of the *Tortricidæ*, with rather short and broad wings; the caterpillar has 16 feet. *Note.*—The primary sense of *coddle*, was to 'castrate,' and hence 'to render effeminate,' being simply a formation from the *cod* [illegible] of the testes: the origin of *coddle*, in the sense of 'pamper,' is correctly given above.

CODE, n. *kōd* [F. *code*—from L. *codĭcĕm*, the trunk or body of a tree, a book: It. *codice;* Gael., *coda,* law, equity]: laws collected and arranged, particularly if done by authority. CODEX, n. *kō'dĕks,* n. plu. CODICES, *kŏd'ĭ-sēz* [L.]: any written document, generally an ancient one; an anc. manuscript, especially of the Holy Scriptures: see BIBLE, THE: also ALEXANDRIAN CODEX, etc. CODICIL, n. *kŏd'ĭ-sĭl* [F. *codicille*—from L. *codĭcil'lus,* a small trunk of a tree, a writing tablet]: an addition or supplement made to a will, whereby anything omitted is added, or any change demanded by the altered circumstances of the testator or the beneficiaries, is effected: it is authenticated in the same manner as a will, and possesses the same privileges when holograph, or written by the hand of the testator himself: see TESTAMENT: WILL. COD'ICIL'LARY, a. *-lėr-ĭ,* of the nature of a codicil. COD'IFY, v. *-ĭ-fī* [L. *făcĭŏ,* I make]: to reduce to a code or system. COD'IFYING, imp. COD'IFIED, pp. *-fīd.* COD'IFIER, n. *-ėr,* or CODIST, n. *kō'dĭst,* one who forms or reduces laws to a system or code. COD'IFICA'TION, n. *-kā'shŭn,* act of forming a code (q.v.), or systematic collection of laws.

CODE: a term now generally confined to jurisprudence, and used to designate a systematic compilation of law authorized by governmental authority to take the place of prior existing law. It is in this sense applied to the codes of Theodosius, Justinian, and Napoleon. The word is used more generally in the United States as applied to a concise, comprehensive, systematic formation and reenactment of the law, deducted from both its principal sources, the pre-existing statutes, and the adjudications of courts as distinguished from compilation of statute law only. Codes such as here described have been adopted and are in use in many of the States. They are, in the most part, modeled upon the Code of Civil Procedure of New York. The purpose of a code is to simplify methods of legal procedure and to model and bring together in a codified form the confused mass of laws, contradictions, repetitions, and disorder which have grown up during a long period of time. Such a codification of law has always been deemed a most difficult task. While the *Corpus Juris Civilis,* or body of civil laws, drawn up by Justinian's commission of 10 learned civilians, was the most important and complete of ancient codes up to that time, there had been other compilations under the empire. These compilations had been made by private lawyers, and formed the basis of the *Codex Gregorianus et Hermogenianus,* which in turn were the models for the imperial codes of Theodosius and Justinian.

The *Codex Theodosianus* was the work of a commission of 16, to whom, in 435 A.D., the Emperor Theodosius entrusted the task of collecting the edicts and constitutions. It was published in 438 A.D., was a work of great importance, and formed the masterpiece on which every

later code was based. It was the initiative of a digest of the whole Roman law. In 528 the Emperor Justinian ordered a new collection to be made, and for this purpose appointed 10 commissioners with full power to make such changes as they might deem necessary in the language of the constitution. They were authorized in their compilation to use the codes, Gregorian, Hermogenian, and Theodosian, and the constitutions, with the understanding that the new code was to supersede the sources from which it had been compiled. The Code Justinian was completed within 14 months, and was subsequently revised to take in new decisions and constitutions of the emperor. The original code was lost. The revised one, which has been preserved, was published in 534, and is divided into 12 books and each book into titles.

Code Napoléon.—The civil code of France in force at the present day takes its name from the great Napoleon. It was undertaken under the consulship of Napoleon by the most eminent jurists of France, and was published in 1804. It is the most celebrated of modern codes. The need of a codification of the laws of France had been urged by eminent jurists and statesmen for some time before Napoleon took the matter up and carried it through. Previous to the adoption of the *Code Napoléon* there had been some partial codes in France; such as the *Code Henri,* made by Brisson in the reign of Henry III.; the *Code Murvillac* or *Michau* under Louis XIII. (1629), relating to judicial procedure, and the *Code Louis XV.*, by Chaussepierre, containing the ordinances from 1722 to 1740. There were several of these ordinances enacted in the reign of Louis XVI. No decided move was made to bring about a codification of the confused condition of the laws of France for the purpose of shaping them into a homogeneous jurisprudence until the Revolution had cleared the way. 'By the consular decree, 1800, Aug. 12, a commission was constituted to compare the order which had been followed in the preparation of the projects for a civil code, 'hitherto published, to determine the plan which the commissioners should think best to adopt, and to discuss the chief principles of civil legislation.'

Napoleon, on becoming consul, appointed a commission headed by M. Tronchet, and including Portalis, Bigot de Préameneu, and Maleville, to review all previous efforts at codification and to suggest a new plan. In 1801 the commissioners reported a draft for a civil code, which was submitted to the court of cassation and other courts of appeal, and with the reports of the judges, was finally brought before the council of state, in which Napoleon (then first consul) presided in person and took part in the discussion as to the terms and scope of the code. The whole revision after much debate was finally adopted under the title of *Les Cinque Codes,* consisting of the civil code, distinguished by the name *Code Napoléon,* the code of criminal procedure, penal code, the code of civil

procedure, and the code of commerce. The entire work was first published under the title *Code civil des Français,* but Napoleon subsequently had it published as the *Code Napoléon,* as he considered the code one of the crowning glories of his reign. The *Code Napoléon* consists of 2,281 articles. Although political upheavals have caused some changes and modifications, the code remains virtually the same as when it left the hands of its framers. The extent of its influence upon the laws of other countries has been very great, as it formed the basis of the codes of the two Sicilies (1819), the Netherlands in 1837, the Swiss cantons from 1819 to 1855, Bolivia in 1843, and the civil code of the State of Louisiana.

Code Frederic.—This is a revision of the Prussian laws, published by Frederick the Great 1749-51, and revised after 1780, but not in force until 1794, was intended, according to its preface, to obviate the difficulties of the Roman codes, the disputes of the commentators, and the contradictions between Roman and German law. It has been subjected to many changes.

Codes in the United States.—The first important experiment with a code in the United States was made in Louisiana, which State, originally a French colony, afterward ceded to Spain, again returned to France, and subsequently acquired by the United States from France, has had many changes of law. After the United States acquired Louisiana there arose a strong demand for a code, owing to the great confusion of laws. In 1806-8 a code was adopted, but only to supersede the ancient laws when they conflicted with it. A complete civil code was adopted for the State in 1824, which had for its basis the *Code Napoléon,* although some provisions of the common law were injected into it.

The most important code ever undertaken in the United States is the one which was prepared for the State of New York many years ago under the guidance and supervision of David Dudley Field. This code, although published, and having formed the foundation for many of the codes adopted by the various States, was never accepted by the legislature of New York. As early as 1839 David Dudley Field advocated and urged the adoption of a code by that State. The revised constitution of New York (1846) ordered the appointment of two commissions: one to reduce into a system the whole law of the State, the other to revise and simplify the rules of pleading. Both commissions were appointed by the legislature in 1847. The commissioners to revise and simplify pleadings and practice made a report 1848, Feb. 27, which contained an incomplete code of civil procedure and practice in the courts of record. This report was immediately adopted by the legislature, but the complete codes of civil and criminal procedure were never adopted. In 1857, Apr. 6, the legislature created a new commission to prepare codes. The commissioners named were David Dudley Field, William Curtis Noyes, and

Alexander W. Bradford. After some eight years they reported a code—or rather three codes—which was never adopted, although reported favorably by the committees of several legislatures.

The code of civil procedure of the David Dudley Field commission formed the foundation, and was largely adopted in the codes of Ohio, Indiana, Missouri, Wisconsin, Iowa, Minnesota, Kansas, Nebraska, Nevada, California, Oregon, North Carolina, South Carolina, Washington, Montana, Alabama, the Dakotas, Wyoming, Utah, and Arizona, and it is the basis of the present codes of civil and criminal procedure in the State of New York, which are codes of practice and pleading, as distinguished from a code of substantive law. The principal feature of the code of civil procedure as adopted by these States was the fusion of law and equity and the simplifying of the written pleadings.

CODEINE, n. *kō-dē'ĭn* [Gr. *kodeia*, a poppy-head]: a vegetable alkaloid closely allied to morphine and constituting about 0.5 per cent. of the weight of opium. Codeine has the formula $C_{17}H_{18}(CH_3)NO_3+H_2O$, and is known to the chemist as methylmorphine, since it is derived from morphine by substituting methyl (CH_3) for one atom of the hydrogen that morphine contains. Codeine may be prepared by adding calcium chloride to an aqueous extract of opium and evaporating to the point of crystallization. The hydrochlorides of morphine and codeine which are obtained in this manner are dissolved in water, and the morphine is precipitated by the addition of ammonia. Codeine hydrochloride remains in solution, and may be obtained by evaporation and crystallization, and further purified by recrystallization from ether. Codeine acts as a strong base, and its solution reddens litmus paper, neutralizes acids, and precipitates solutions of lead, iron, and copper. From aqueous solution it is deposited in the form of trimetric crystals, as indicated by the formula given above. Crystals free from water may be obtained by deposition from a solution in carbon disulphide. When treated with strong sulphuric acid and a small quantity of ferric chloride ($FeCl_3$), codeine compounds give an intense blue color. This reaction is of great value in testing for the presence of the alkaloid. Codeine is used in medicine as a narcotic and hypnotic. Its properties are very similar to those of morphine, but by reason of the methyl groups introduced it has more action on the spinal cord than morphine has. It thus does not cause sleep or relieve pain as readily as morphine, and causes more reflex excitability. It may even cause convulsions in children. It is valuable where a milder sedative than morphine is desired, as there is less euphoria produced and less likelihood of forming a habit. Its use is not free from danger, however, and very small doses have been known to prove fatal.

CO'DEX, with the ancients, the trunk of a tree stripped

of the bark. Before the invention of paper, wooden tablets covered with wax, which were written on with the style, and put together in the shape of a book, were called codex. The word was afterward retained, in times when paper was used for writing, to denote a large book. Thus important works, particularly old manuscripts of poets, historians, etc., which had been preserved, were called *codices manuscripti*. In like manner a collection of laws was called codex, with the addition of the name of the sovereign under whom, or of the person by whom it had been compiled, as *Codex Gregorianus*, *Codex Theodosianus*, *Codex Carolinus*. *Codex rescriptus* (Latin, a re-written codex) is the name given to ancient manuscripts, which, in the Middle Ages, were used, after the original writing had been in a great measure effaced, for the copying of other works, generally ecclesiastical treatises. Thus the Institutions of Gaius, discovered by Niebuhr at Verona in 1816, and published by Göschen in 1821, is a *codex rescriptus*. The Greek name for *codex rescriptus* is *palimpsest*, now more frequently used. One of the oldest manuscripts of the New Testament, designated by the letter C, is a *codex rescriptus*, on which the works of Ephraem Syrus have been written.

CODEX ALEXANDRINUS: see ALEXANDRIAN CODEX,

CODEX BEZÆ, *kō′děks bē′zē*, or CODEX CANTABRIGIENSIS: uncial manuscript discovered, 1562, in the monastery of St. Irenæus at Lyons, acquired by Theodore Beza, and presented by him, 1581, to the Univ. of Cambridge. It is probably of the 6th c., and contains the four gospels in an order (Matthew, John, Luke, and Mark) found also in some old Latin MSS., with the book of Acts, all in Greek and Latin on opposite pages. There are many interpolations, probably taken from the margin of an older copy; these being eliminated, the text agrees in the main with others. Whiston translated it 1745: it was published by Dr. T. Kipling in 2 vols. folio (Cambridge, 1793) nearly in fac-simile, and again by F. H. Scrivener 1864.

CODEX EPHRAEMI, *kō-děks e-fra-ē′mī:* uncial palimpsest of parts of the Greek Bible brought from the East by Lascaris, taken by Catharine de' Medici to Paris, and there kept in the national library. The text, which had been erased and written over with works of Ephræm Syrus, was discovered by Peter Alix abt. 1690, and some passages from it published by Küster 1710. Wetstein, sent by Bentley 1716, partly collated the MS., and used the results in his Greek Test. (1751–52). A chemical compound, applied to the leaves 1834 to bring to light the obscurities of the text, had that effect in some cases, made other parts worse than before, and discolored the whole. Tischendorf, who devoted most of 1841 to the task, was the first to decipher and copy the whole MS.; he published it in 2 vols. at Leipsic 1843–45. It is supposed to be of the 5th c., and for critical authority is ranked by Tregelles next to the Sinaitic and Vatican MSS. It had been touched by correctors of about the 6th and 9th centuries.

CODEX SINAITICUS: see SINAITIC CODEX.

CODEX VATICANUS: see VATICAN CODEX.

CODGER, n. *kŏj′ėr* [Ger. *kotzen*, to spit; *kotzer*, a spitting or coughing man or woman]: *familiarly*, a term of abuse for an elderly person; an eccentric, strange old fellow; a miser.

CODICIL, CODIFY, CODIFICATION: see under CODE.

CODILLA, n. *kō-dĭl′lă* [L. *cauda*, a tail]: the coarse part of flax or hemp, called *tow*, sorted out by itself.

CODILLE, n. *kō-dĭl′* [Sp. *codillo*]: a term at omber, signifying that the stake is won.

CODLING n.: see under COD and CODDLE.

COD-LIVER OIL: generally obtained from the livers of the common cod (q.v.) but likewise from allied species, as ling, dorse, coal-fish, torsk, etc. In these fish, the adipose tissue (q.v.) containing oil, is almost entirely confined to the liver, in which they agree with the shark tribe, while in other fish, as in the herring and salmon, the oil is diffused over the entire structure of the animal. Cod-liver oil is prepared largely in Britain, Norway, and Newfoundland. There are three varieties of the oil in commerce—*pale cod-liver oil*, *pale-brown cod-liver oil* and *dark-brown cod-liver oil*.

In the preparation of the oil, the livers are placed in a tub with a layer of spruce boughs at the bottom, and subjected to pressure, when the light-colored or pale oil exudes, and is run off by an opening at the lower part of the tub. As the livers partially putrefy, more oil escapes, which is darker than that procured from the fresh livers, and constitutes the pale-brown oil; and the residual livers being boiled with water, part with their remaining oil, and yield the dark-brown oil. The pale oil thus approaches more nearly the condition in which the oil is present in the livers, while the other varieties are more or less impregnated with the products of the putrefaction of the livers. The purer oil has a peculiar fishy odor and taste, which is not disagreeable, although it remains for a little time, and in some cases requires a little practice to get accustomed to it. The darker varieties have more or less of a disagreeable empyreumatic odor and taste, and leave in the throat an unpleasant nauseous sensation, more difficult to overcome.

The oil consists mainly of oleic and margaric acids, in combination with glycerine, and holding in solution the constituents of the bile, acetic acid, a phosphorized oil, as also iodine and bromine. These ingredients are present most largely in the light-colored oil. Cod-liver oil is occasionally adulterated with more or less train-oil, to which a little iodine has been added. In the purer varieties of cod-liver oil the presence of any such admixture can be at once observed from the disgusting odor, although in the darker varieties of cod-liver oil the test of odor cannot be relied on.

As a remedy, cod-liver oil has a great reputation as efficacious in the treatment of scrofulous and tubercular diseases, especially consumption (q.v.); it has been used extensively also in chronic rheumatism, in rickety affections, and in other diseases of the bones and joints. The virtues of cod liver oil have been ascribed to iodine, bromine, and other specific ingredients; but, on the whole, the most probable view of its action is that it is simply a fattening agent—a fatty food—and that it acts by nourishing the system in cases attended with emaciation, just as new milk, cream, and butter, or fat bacon, sometimes act in similar cases. Cod-liver oil is often more easily digested than, from its somewhat disagreeable odor and taste, might have been expected. Children in particular, often take it readily; and in emaciated old people, it is sometimes of great service in conjunction with remedies suited to the peculiar case. In true tubercular consumption it has for some years had great repute; but it is very far from having anything like a specific remedial action in that disease. Cod-liver oil is taken usually in doses of from a dessert-spoonful to a table-spoonful three times a day; but a pint, or even more, is said to have been consumed daily in some instances with good effect, or at least without injury.

CODOGNO, *kō-dōn′yō:* town of Lombardy, n. Italy, in a rich district between the Adda and the Po, about 15 m. s.e. of Lodi. It is well built, and has manufactures of silk and linen, and a great trade in cheese. Pop 9,632.

CODONOSTOMA, n. plu. *kō′dō-nŏs′tŏ-mă* [Gr. *kodon*, a bell; *stoma*, a mouth]: the aperture or mouth of the disc of a medusa, or of the bell of a medusiform gonophore.

COD-PIECE, n. *kŏd-pēs:* a front part of breeches, formerly made very conspicuous, and sometimes indelicate in appearance.

CODRINGTON, *kŏd′rĭng-ton*, Sir Edward, G.C.B., etc.: British admiral: 1770–1851, Apr. 28; third son of Edward Codrington. He entered the navy 1783. In 1794 he was lieut. of the *Queen Charlotte*, Lord Howe's flag-ship, in the actions of May 28, 29, and June 1. At the battle of Trafalgar, 1805, he was capt. of the *Orion*, 74. He afterward served in the Mediterranean, and in N. America, and rose to the rank of vice-admiral in 1821. 1826, Nov. 1, he was appointed commander-in-chief of the Mediterranean squadron, and in that capacity took the leading part in the battle of Navarino (q.v.), and received in reward the grand cross of the Bath, with Russian and French orders; but the battle being considered an 'untoward event,' Codrington was recalled. He attained the full rank of admiral of the red, 1837, and 1839 was appointed commander-in-chief at Portsmouth. He was M. P. for Devonport 1832–39.

His son, Gen. Sir William John Codrington., G.C.B., was commander-in-chief in the Crimea, 1855–6; and was promoted to the rank of general 1863.

Another son, Admiral Sir Henry John Codrington.

K.C.B., took part in the destruction of St. Jean d'Acre, and became an admiral 1867.

CODRUS, *kō'drŭs:* last king of Athens; son of Melanthus, and, according to Grecian legend, sacrificed his life for his country about B.C. 1068. A war raging between the Athenians and Dorians, the oracle declared that the victory should belong to those whose king was slain by the enemy; whereupon, Codrus attiring himself as a peasant, entered the Dorian camp, and, having picked a quarrel with some of the soldiers, contrived to have himself slain. His son, Medon, was made archon (q.v.) for life, on the pretense that no one was worthy to succeed such a man as king.

CODY, WILLIAM FREDERICK: formerly an American scout, b. Scott Co., Ia., 1846, Feb. 26; generally known as BUFFALO BILL. His parents moved to the country about Fort Leavenworth, Kansas, where the father was killed in the Border War with the Indians when the boy was but an infant. When still very young he was employed by the express companies as a rider to carry packages and valuables on horseback across the country, a most dangerous occupation. Soon he became known as a fearless and perfect rider, a keen scout, a reliable plainsman and hunter. When but little over 21 he attracted the notice of United States army officers, who were constantly in need of the services of expert scouts who could be depended upon and who knew the habits and languages of the red man. In 1868–9 he was made chief of scouts by Gen. Sheridan, then campaigning against the hostiles. Colonel John Schuyler Crosby, then adjutant under Sheridan, says of Cody: 'He carried despatches 100 miles for Gen. Sheridan through terrific fire of hostile bands of Indians and returned with replies safely.' This and his many personal encounters with the Indians, in some of which he saved the day for the troops, made him a noted man. He is the last of the six great scouts of America—Boone, Crockett, Carson, Bridger, 'Wild Bill,' 'Buffalo Bill.' He gained this name from his dexterity as a hunter, his record being 4,862 buffalo in one season—69 in one day. He continued actively engaged in frontier work for many years, killing the Cheyenne chief, Yellow Hand, in a celebrated personal encounter during the Sioux war of 1876. Early in the eighties he began the carrying out of a cherished idea—to gather about him some of the remaining elements which went to make up a frontier life and exhibit this unique existence in the eastern states and in Europe. He presently accomplished this end, forming the exhibition called the 'Wild West,' now known the world over. In this he has gathered scores of Indians, some of whom were once his mortal foes; hundreds of cow-boys; the old Deadwood coach, used so many years to carry mail and passengers, and much other really valuable material. With this gigantic show he has toured America and Europe for nearly 20 years, amassing a fortune which he has invested in lands in Nebraska and Wyoming. In the latter

state is a town named after him, on his land. In 1901 he became president of 'The Cody Military College and International Academy of Rough Riders,' a school to be established on his property in Wyoming, where young men may learn to ride and become masters of themselves and their horses—a post graduate school in manhood, as he terms it. He is judge-advocate general of the Wyoming national guard and with others has written *The Great Salt Lake Trail.*

COE, Edward Benton, American clergyman: b. Milford, Conn., 1842, June 11. He was graduated at Yale 1862, studied at Union Theological Seminary 1862–3, and in France and Germany 1864–7. From 1864 to 1879 he was Street professor of modern languages at Yale, and on 1879, Oct. 2 was ordained by the Classis of New York as one of the ministers of the Collegiate Reformed Dutch Church. He was pastor of the Fifth Avenue and West 48th Street Church till 1890, January, since when he has been senior minister without charge of a specific congregation. He has published a number of sermons, and a volume entitled *Life Indeed* (1899).

COE, George Albert, American educator: b. Monroe County, N. Y., 1862, March 26. He graduated at the University of Rochester 1884, and in theology at Boston University 1887 obtaining the travelling fellowship of the latter college and studying at the University of Berlin 1890–1. He was acting professor of philosophy in Northwestern University 1891–3, when he was elected to the John Evans chair of philosophy there. Besides articles in philosophical and theological journals, he has written *The Spiritual Life: Studies in the Science of Religion* (1900); *The Religion of a Mature Mind* (1902); *Education in Religion and Morals* (1904).

COE COLLEGE, an educational institution for both sexes, located at Cedar Rapids, Iowa. It was organized in 1881, under the auspices of the Presbyterian Church, and reported at the end of 1902 that it had 25 professors a and instructors, 305 students, and 3,500 volumes in the library.

CŒCILIAN, or Cæcillian, *sē-sĭl′yăn,* limbless amphibians, constituting a family, *Cœciliidæ* or *Cæciliidæ,* and an order *Apoda* or *Gymnophionia.* They are remarkable for the entire absence of limbs, even the internal limb girdles having disappeared, and the bony roof to the temporal region of the skull. In the latter feature they simulate the extinct *Stegocephali,* to which some zoologists believe them to be rather closely related though the temporal roof is formed by different bones. The form is worm-like, and notwithstanding that the number of vertebræ may exceed 200, the tail is very short. A series of annular scales, somewhat embedded in the skin, protect the body externally, and as a further adaptation to their burrowing habits the eyes are rendered nearly or quite useless by being buried beneath the skin, the deficiency in

sight being compensated by the presence of a pair of nearly unique retractile sensory tentacles.

Some species are viviparous, others oviparous. In the case of the latter the female coils about the eggs and protects them until hatched. The young of many are noteworthy in the possession of external gills, while the respiration of the adults is pulmonary. Their food consists principally of earthworms and subterranean insect larvæ. Dr. Boulenger recognizes 17 genera and 40 species, but probably many remain undiscovered. None have been found except in a zone encircling the earth, chiefly within the limits of the tropics; South and Central American species are numerous; but none are certainly known from North America. Consult: Boulenger, *Proceedings of the Zoological Society of London* (1895); Sarasin, *Forschungen auf Ceylon* (Vol. II.).

COEDUCATION: the education of both sexes in the same class or institution. In the western States and Territories of the United States it is almost the only system of education, and it is rapidly becoming the prevailing system in the South, where the influence of the state universities is predominant. On the other hand, in the New England and Middle States the great majority of the youth of both sexes are still receiving a separate college education. Coeducation was introduced into colleges in the West as a logical consequence of the so-called American system of free elementary and secondary schools. During the great school revival of 1830–45 and the ensuing years until the outbreak of the Civil War in 1861, free elementary and secondary schools were established throughout New England and the Middle States and such Western States as existed. It was a fortunate circumstance for girls that the country was at that time sparsely settled; in most neighborhoods it was so difficult to establish and secure pupils for even one grammar school and one high school that girls were admitted from the first to both. In the reorganization of lower and higher education that took place between 1865 and 1870 this same system, bringing with it the complete coeducation of the sexes, was introduced throughout the South both for whites and negroes, and was extended to every part of the West. In no part of the country, except in a few large eastern cities, was any distinction made in elementary or secondary education between boys and girls. The second factor in the education of American women was the occurrence of the Civil War at the formative period of the public schools, with the result of placing the elementary and secondary education of both boys and girls overwhelmingly in the hands of women teachers. This result proved not to be temporary, but permanent, and from 1865 until the present time, elementary and secondary education of both boys and girls has been increasingly in the hands of women. When most of the state universities of the West were founded they were in reality scarcely more than secondary schools supplemented, in most cases, by large preparatory

departments. Girls were already being educated with boys in all the high schools of the West, and not to admit them to the state universities would have been to break with tradition. Women were also firmly established as teachers in the secondary schools, and it was patent to all thoughtful men that they must be given opportunities for higher education, if only for the sake of the secondary education of the boys of the country. The development of women's education in the East has followed a different course because there were in the East no state universities, and the leading private colleges for men had been founded before women were suffered to become either pupils or teachers in schools. The admission of women to the existing eastern colleges was, therefore, as much an innovation as it would have been in Europe. The co-education of men and women in colleges, and at the same time the college education of women, began in Ohio, the earliest settled of the western States. See COLLEGES IN THE U. S. After 1850 it was the custom as state universities were opened in the Far West to admit women. Indiana, opened as early as 1820, admitted women in 1868. The University of Michigan was, at this time, the most important western university, and the only western university well known in the East before the War. When, in 1870, it opened its doors to women, they were for the first time in America admitted to instruction of true college grade. Of the state universities of the South the two most western admitted women first; the universities of Virginia, Georgia, and Louisiana are still closed to women. The State University of Maine admitted women in 1872. Cornell was the first of large colleges of the East to open its doors to women. This example has been followed but slowly by institutions in the Eastern and Middle States, and less than half the colleges of this section are coeducational, while about 80% of all the colleges of the U. S. admit women. All the arguments against the coeducation of the sexes in colleges have been met and answered by experience. It was feared at first that coeducation would lower the standard of scholarship on account of the supposed inferior quality of women's minds. The unanimous experience in coeducational colleges goes to show that the average standing of women is slightly higher than the average standing of men. Many reasons for the greater success of women are given, but the fact, however it be explained, remains. The question of health has also been finally disposed of; thousands of women have been working side by side with men in coeducational institutions for the past 25 years and undergoing exactly the same tests without a larger percentage of withdrawals on account of illness than men. The question of conduct has also been disposed of. None of the difficulties have arisen that were feared from the association of men and women of marriageable age. Statistics show that not only is the number of coeducational colleges increasing, but the number of women relatively to the number of men is increasing also.

In professional schools, including the graduate school of the faculty of philosophy, coeducation is even at present, almost the only method. There are in the United States only four graduate schools for men closed to women, and only one independent graduate school maintained for women offering three years' consecutive work leading to the degree of Ph. D.

COEFFICIENT, n. *kō'ĕf-fish'ĕnt* [L. *con*, together; *effic'-iĕns* or *efficiĕn'tem*, efficient—from *ex*, out of; *facĭō*, I do or make]: that which unites with something else to produce the same effect; in *alg.*, the known or constant number which is the factor of an unknown or variable quantity. Thus, in the expressions $4x$ (4 times x), bz (b times z), 4 and b are coefficients of x and z, b being supposed known as well as 4, and x and z unknown or variable. Strictly speaking, in a product, such as 3×5, $4 \times x$, or $b \times z$ ($=bz$), either of the two factors is a C., since they 'together make' the product; but in practice, the meaning is restricted as above: ADJ. co-operating; acting to the same end. CO'EFFICI'ENCY, n. *-fĭsh'ĕn-sĭ*, the state of acting together to produce the same effect. CO'EFFI'CIENTLY, ad. *-ĕnt-lĭ*.

COEFFICIENT: in psychology, a term used by certain psychologists (e.g. Baldwin) to indicate an essential peculiarity or distinguishing mark for consciousness. For example the 'the coefficient of reality being the marks of whatever kind attaching to mental contents by which consciousness attains its beliefs.' Thus the coefficient of external reality according to Baldwin is the 'uncontrollableness' of the sensation stimulus. It is this factor of the total experience which conditions our belief in it.

COEHOORN, *kô'hōrn*, or COHORN, *kō'horn*, MENNO-Baron VAN, called the Dutch Vauban: 1641–1704, Mar. 17; b. Lettingastate, near Leeuwarden; studied fortification and mathematics under his uncle Bernardus Fullenius, then prof. of these sciences at Franeker. Prince Henry Casimir, Stadtholder of Friesland, apprised of the youth's great abilities, appointed him, in his 16th year, capt. of a company of infantry; and in 1674 Coehoorn greatly distinguished himself at the siege of Maestricht, and in various battles. At the siege of Grave, 1674, he demonstrated that small portable mortars might be advantagecusly employed (see COEHORN); and also that the combined effect of a certain mass of projectiles is much greater than the effect produced by a successive discharge of the separate projectiles composing the mass. The application of this principle distinguishes the operations of Coehoorn. Coehoorn covered himself with honor before Kaiserswerth (June) and Bonn (1689, Oct.), and the elector of Brandenburgh wanted to make him maj.-gen., but he refused the promotion. He also distinguished himself in the battle of Fleurus (1690, July 1). He was now for some time in disgrace, but was soon sought again by William III. He fortified Namur and defended his own

intrenchment 'William' against Vauban, 1692; besieged that fortress 1695, and retook it; was appointed lieut. gen. and director-in-chief of the Dutch fortifications, and fortified several towns, of which Bergenop-Zoom may be considered his master-piece. In 1702, he annihilated the French lines near St. Donat. He died at the Hague. His principal works are *The New System of Fortification* (Leeuwarden, 1685) and *The Pentagon.*

COEHORN, n. *kō'hawrn* [after the inventor Baron *Coehoorn*]: in *mil.*, a small kind of mortar, generally four and a half inches caliber; sometimes, in sieges, grouped in great numbers.

CŒLACANTHI, n. plu. *sē'lă-kăn'thī* [Gr. *koilos,* hollow; *akantha,* a spine]: an extensive group of fossil sauroid fishes.

CŒLELMINTHA, *sē-lĕl-mĭn'tha* [Gr. hollow worms]: name given by Owen to one of the two orders of entozoa (q.v.), or intestinal worms, having a distinct abdominal cavity and intestinal canal, the *Vers intestinaux cavitaires* of Cuvier. Examples of this order are *Ascaris Strongylus* and *Filaria.*

CŒLENTERATA, n. plu. *sē-lĕn'tĕr-ā'tă* [Gr. *koilos,* hollow; *entĕron,* a bowel or gut; *entĕra,* entrails]: in *zool.*, a great division of the animal kingdom, long specifically called a sub-kingdom, the sub-kingdom comprising the Hydrozoa, Actinozoa, and Ctenophora; a name used instead of the old term Radiata; this sub-kingdom includes those animals which have a large internal or 'somatic' cavity, and whose bodies consist of two foundation membranes or layers, one forming an integument, the other a lining, to the large internal cavity: see SUB-KINGDOMS, ANIMAL: POLYPI: ACTINIA: CORAL, etc.: also ZOOLOGY (Classification).

CŒLE-SYRIA, *sē'lē sĭr'ĭ-a* (Hollow Syria), now called by the natives El-Bŭkâ'a, 'the deep plain:' valley of Syria, extending between the ranges of the Lebanon and anti-Lebanon. Near Bar Elias it is 2,854 ft, above the sea. Its length is about 100 m., and its average breadth 10. In this valley stand the ruins of Baalbek and the village of Zahleh.

CŒLIAC, or CELIAC, a. *sē'lĭ-ăk* [Gr. *koilia,* the belly]: pertaining to the intestinal canal. CŒLIAC PASSION, a flux or diarrhea of undigested food. CŒLIAC AXIS: see AORTA.

CŒLOMETER, n. *sē-lŏm'ĕ-tėr* [L. *cœlum,* the sky; Gr. *metron,* a measure]: an instrument used under the sanction of the board of trade for marine examinations.

CŒLOSPERM, n. *sē'lŏ-spėrm,* CŒLOSPERMÆ, n. plu. *sē'lŏ-spėr'mē* [Gr. *koilos,* hollow; *koilia,* the belly; *sperma,* seed]: applied to seeds with the endosperm curved at the ends, so that the base and apex approach, as in coriander-seed.

COEN, *kôn,* JAN PIETERSZOON: 1587–1630; b. Hoorn,

Holland: founder of Batavia. He had a commercial training in Rome, was in India 1597–1611, went out again in command of two ships 1612, was made director-gen. of the India trade 1613, and pres. of the factory at Bantam 1617. He took and destroyed Jacatra, built Batavia on its site 1619, removed the factory thither, and made it the cap. of the Dutch E. Indies. He returned to Europe 1622, and to Batavia 1627, to resist a siege by the emperor of Java 1629. He died of a pestilence said to have been produced by the bodies of his slain enemies.

COENAESTHESIS, n. *sĕn-ĕs-thē′-sis.* [Gr. *Koivos,* common; *aisthesis,* feeling]: a term apparently first used by Hamilton to designate the entire mass of organic sensation, our feeling of bodily health, fatigue, discomfort, etc. The term is becoming obsolescent.

CŒNANTHIUM, n. *sē-năn′thĭ-ŭm* [Gr. *koinos,* common; *anthos,* a flower]: in *bot.,* the peculiar inflorescence of the common fig, etc., consisting of a large fleshy receptacle which contains the whole inflorescence male and female: also spelled CÆNANTHIUM.

CŒNENCHYMA, n. *sē-nĕn′kĭ-mă* [Gr. *koinos,* common; *eng′chuma,* an infusion, tissue]: the calcareous tissue which unites together the various corallites of a compound corallum.

CŒ′NOBITE [see CENOBITE], or SYNODITE: one of a company of monks who live together, in distinction from the anchorites (q.v.), or hermits, who withdraw from all society and live in a solitary fashion. The first *Cœnobium,* or monastery, was founded by Pachomius, disciple of St. Anthony, about A.D. 340, at Tabennæ, an island in the Nile. In a short time it reckoned 1,300 monks, and stimulated the establishment of numerous other monasteries in Egypt, Syria, and Palestine.

CŒNŒCIUM, n. *sē-nē′shĭ-ŭm* [Gr. *koinos,* common; *oikos,* a house]: in *zool.,* the plant-like structure or dermal system of any polyzoon; another name for 'polyzoary' or 'polypidom.'

CŒNOSARC, n. *sē′nō-sârk* [Gr. *koinos,* common; *sarx,* flesh]: the common organized medium by which the separate polypites of compound hydrozoa are connected together.

CŒNU′RUS: see CESTOID WORMS, under CESTOID.

CO-EQUAL, a. *kō-ē′kwŏl* [L. *con,* together; *æquus,* equal]: of the same rank, dignity, or power: N. one who is equal to another. COE′QUALLY, ad. *-lĭ.*

COERCE, v. *kō-ėrs′* [L. *cŏĕrcērĕ,* to keep in or restrain—from *con,* together: *arcĕō,* I drive, I confine]: to restrain by force; to compel. COER′CING, imp. COERCED′, pp. *-ėrst′.* COER′CER, n. *-sėr,* one who. COER′CION, n. *-ėr′shŭn,* compulsion; restraint by force. COER′CIBLE, a. *-sĭ-bl,* that may or ought to be repressed. COER′CIVE, a. *-sĭv,* having power to restrain. COER′CIVELY, ad. *-lĭ.*—SYN. of 'coerce': to compel; bind; oblige; constrain; force; repress.

COERCIVE FORCE: the property which hardened steel possesses of resisting any change in its magnetic condition. It necessitates a stronger magnetizing force to produce a given magnetization than does ordinary iron, and once magnetized, the steel will remain magnetized even after the magnetizing force is removed, continuing to act as a magnet.

CO-ETERNAL, a. *kō′ĕ-ter′năl* [L. *con,* together; *æternus,* perpetual, everlasting]: equally eternal with another.

CŒUR, *kėr,* JACQUES: abt. 1395–1456, Nov. 25; b. Bourges: founder of French trade with the Levant. He established a business house at Montpellier 1432, and began buying goods at Damascus. Made master of the Paris mint by Charles VII., 1436, he instituted a reform of the coinage, which had been greatly debased. He was steward of the royal expenditure 1438, ennobled 1440, and sent as a royal commissioner to preside over the parliament of Languedoc 1444. His agents in the East negotiated a treaty, 1445, between the Sultan of Egypt and the Knights of Rhodes: De Village, who had married his niece, conducted an important mission to Egypt 1447, and established French influence in the Levant. Cœur himself was an embassador to Savoy 1447, and to Pope Nicholas V. 1448. He loaned the king great sums for the conquest of Normandy, served in the campaign which ousted the English, and entered Rouen in his master's train. He had amassed the greatest fortune ever owned by a French subject; he had 300 factors, houses of business in all the chief cities, ships in all parts of the Mediterranean. A broker, banker, farmer, dealing in everything, he had monopolized the trade of France. So, at least, his enemies complained to the king, whose envy was aroused by so much wealth; to consficate was the easiest way to repay. Agnes Sorel, mistress of Charles VII., died of fever 1449, Feb. Two years later, Cœur was absurdly accused of poisoning her and committing various other crimes. After a mock trial he was condemned to public penance, a fine of 100,000 crowns, loss of property, imprisonment, and ultimate exile. The sentence took effect 1453, June 5. After two more years of confinement he escaped to Provence, and thence, aided by old friends, to Rome. The pope received him cordially, and gave him command of a fleet sent to relieve Rhodes. During this expedition he died at Scio. His memory was rehabilitated by Louis XI. Accounts of him have been written in French by Bonamy, Trouvé (1840), and Pierre Clément (1858), and in English by Louisa Costello (1847).

COEVAL, a. *kō-ē′văl* [L. *coævus*—from *con,* together; *ævum,* an age]: of the same age; contemporaneous; beginning to exist at the same time.

CO-EXIST, v. *kō′ĕg zĭst′* [L. *con,* together; *existo,* I exist]: to exist at the same time with another. CO′EXIS′TENT, a. *-tĕnt,* having existence at the same time with another: N. that which coexists with another. CO′EXIS′TENCE, n. *-tĕns,* existence at the same time with another.

CO-EXTENSIVE, a. *kō′ĕks-tĕn′sĭv* [L. *con*, together; *ex*, out of; *tensus*, stretched]: having the same extent.

COFFEE, n. *kŏf′fĭ* [Ar. *kahwa* or *kahwé*, coffee, but formerly one of the names of wine: F. and Sp. *café*, coffee]: the seed of an evergreen shrub, which is cultivated in tropical countries, supposed to be native to Abyssinia, although it was early found in Arabia. The plant belongs to the genus *Coffea*, order *Rubiaceæ*. It has a tubular 4–5-cleft corolla, and a succulent fruit containing two cells lined with a cartilaginous membrane, and each containing one seed.

In a wild state, the coffee tree is a slender tree, 15–30 ft. high, with few branches; in cultivation, it is seldom allowed to become more than 6–10 ft. high and is made to assume a sort of pyramidal form, with horizontal branches almost from the ground. The leaves are evergreen, opposite, very shining, oblong, and leathery; the flowers are small, clustered in the axils of the leaves, and snow-white; the whole appearance of the tree is very pleasing; and the smell of the flowers delicious. The fruit, when ripe, is of a dark-scarlet color, and the seeds are semi-elliptic, and of a horny hardness. The seeds are commonly termed *coffee beans*, but this name is not derived from a resemblance to beans, which they have not, but from the Arabic word *bunn*. They are sometimes incorrectly designated *coffee berries*.

The coffee tree thrives only in countries where the average temperature of the year is about 64°–70° F. In Peru and Quito it is acclimatized at an elevation of 6,000 ft., where, however, frost never occurs; but as it delights in a moist atmosphere it nowhere thrives better than in tropical islands. The fruit ripens in the hot-houses of colder climates, where the coffee tree frequently flowers. Coffee plantations are laid out in quadrangles, bordered by fruit trees—the coffee trees standing in rows; they are pruned to the same height, and the ground between them is carefully kept clean of weeds. Where the climate is dry abundant irrigation is necessary, but the supply of water is cut off as the fruit begins to ripen, in order to improve its quality. The tree yields its first crop in the third year; the crop from a full grown tree may amount to a pound of coffee beans. As the coffee tree continues flowering for eight months its fruits are at any time of very unequal ripeness; in the W. Indies and Brazil three gatherings are therefore made annually.

The fruit is harvested with great care, cloths being placed under the trees before shaking them. The fruit is then exposed to the sun to dry, after which it is pulped, washed, dried again, hulled, cleaned, and sorted before it is ready for the market. In some places, especially Brazil, the bean is pulped by machinery as soon as it is taken from the tree, and thus the time necessary to get the coffee ready for market is shortened. Some of the coffee producing countries of the world to-day are: Brazil, the Philippines, Hawaii, Cuba, Porto Rico, Jamaica,

Central America, and parts of Africa, Arabia, Java, and Ceylon. Brazil has a larger coffee bearing area than any other country; it produces more than two thirds of all the coffee consumed in the world. The producing of coffee in Yemen, or Wady Negram, or anywhere near Mocha is largely a thing of the past, but one kind of coffee-berry raised in Brazil and in some other countries much resembles in form and flavor the old market mocha. The industry of coffee planting in Ceylon has been very largely destroyed by a leaf disease, but giving the soil a rest or changing crops may result in again placing Ceylon among the places producing an excellent quality of coffee. The names given to coffee are usually those of the cities from which shipments are made.

In Porto Rico and Cuba coffee of a good quality is raised, but as yet in small quantities. In the Hawaiian Islands coffee of excellent quality is produced, and the orchards are increasing in size and number. Hawaiian coffee brings the highest price of any on the Pacific coast. In the Philippines there are splendid orchards, especially in the southern islands of the archipelago, known as the Sulu or Jolo group. On the island of Jolo are fine coffee-trees that bear much earlier after planting than those of Brazil. There are large tracts of land in the Philippines which are as favorable for coffee growing as any in Brazil, but the area that may be devoted to coffee farming is not so great.

The difference in the taste of coffee as found in our markets is principally due to two causes: (1) the roasting to either a reddish-brown or a dark brown; (2) the picking of coffee when some berries are green, others red, and still others a dark purple, the last being the ripe fruit. Thus we have three grades from each tree: add the difference in roasting, as mentioned, and we have six grades; then take the perfect berry, which is flattened on one side, and the spherical berry, the so-called mocha, and that gives 12 grades of coffee. The earlier history of the coffee tree is not very clear. It was not known to the Greeks or Romans; but in Abyssinia and Ethiopia it has been used from time immemorial; and in Arabia it was certainly in use in the 15th c., and over the rest of the East in the 16th c. Toward the end of the 17th c. it was carried from Mocha to Batavia by Wieser, a burgomaster of Amsterdam, where it was soon extensively planted, and at last young plants were sent to the botanical garden at Amsterdam, from which the Paris garden obtained a tree. A layer of this was carried out to Martinique 1720, where it succeeded so well, that in a few years all the W. Indies could be supplied with young trees. The use of coffee as a beverage was introduced from Arabia, in the 16th c., into Egypt and Constantinople. Leonhard Rauwolf, a German physician, was probably the first to make coffee known in Europe, by the account of his travels printed 1573. Soon after the first introduction of coffee, COFFEE HOUSES arose almost every-

where. The first in Europe was established in Constantinople 1551. In London, the first coffee-house was opened in Newman's Court, Cornhill, 1652, by a Greek named Pasquet. This Greek was the servant of an English merchant named Edwards, who brought some coffee with him from Smyrna, and whose house, when the fact became known, was so thronged with friends and visitors to taste the new beverage, that to relieve himself from annoyance, Edwards established his servant in a coffee-house. The first coffee-house in France was opened at Marseille 1671, and in 1672 there was one opened in Paris, which soon had several competitors.

In Arabia and the east, coffee is not usually prepared as a beverage in the same way as in Europe, except by Europeans. A decoction of the unroasted seeds is there generally drunk; and for the 'Sultan's coffee,' the pericarp, with the dried pulp roasted is employed. The leaves of the coffee tree are used in the w. part of Sumatra instead of the seeds. They are prepared by quick drying in a manner similar to that in which tea-leaves are prepared; and in this state contain even a larger proportion of caffeine than the coffee beans of our shops. It seems not improbable that the use of the coffee leaf may yet extend very much. The U. S. leads the world in the consumption of coffee; the total amount imported in 1906 was 854,019,542 lbs. valued at $73,256,134. The great demand for coffee has led to the use of a number of cheaper substitutes or adulterations, of which chicory (q.v.) is the best known. Dandelion, parsnip, carrot, and beet roots, beans, lupins, rice, and various cereals, roasted and ground, have all been employed, and within recent years the manufacture of artificial coffee has been undertaken on a considerable scale, the material being mixed to a stiff paste and run through a machine for which patents have been granted, and from which it emerges in the shape of 'coffee-beans,' which, after drying and roasting, are well calculated to deceive the eye, though not the nostrils or palate. These adulterations can be readily detected, for genuine roasted coffee may be soaked in cold water indefinitely without the bean losing its smooth surface or hard, tough consistency, nor will it impart its color to the water; whereas chicory and other imitations become soft and spongy and render the water muddy.

The action of coffee on the body is due to the presence of three substances: 1. *Caffeine* (q.v.), which occurs in the roasted bean to the extent of ¾ to 1 per cent.; 2. A *Volatile oil*, not present in the raw bean, but developed during the process of roasting to the extent of only one part in about 50,000 of the roasted coffee; and 3. Astringent acids, resembling tannic acid, but called caffeotannic and caffeic acids.

The volatile oil, like others in this class, stimulates peristalsis, and assists to overcome constipation—in

this respect coffee and tea being quite opposites—and it also aids in the expelling of flatus; but taken too often and in too large quantities the oil contributes to the causation of a certain amount of gastric indigestion. The more delicate the aroma of coffee the less the oil, and the better from this standpoint. The action of caffeine is much more complex.

So far as coffee-drinking is concerned, the action of caffeine is that of a cardiac stimulant, a nerve-muscle excitant, a diuretic, and a cerebral excitant. Thus it may cause a sense of undue fullness in the blood vessels. It almost invariably causes a slight muscular tremor, which is not noted in those who do not use their hands for fine work, as artists, for example. It causes an increased flow of urine, and tends to prevent sleep. Time, custom, usage, dose, and the individual's reaction all modify these general laws; but these reactions occur, although none of them may be of sufficient grade to make the observer cognizant of the action. Thus many people are not kept awake by coffee. They have probably habituated themselves and require larger doses.

Hot coffee is one of the best heart tonics known, and it is sometimes used in large quantities by rectum in cases of shock, opium poisoning, pneumonia, etc. Coffee is also valuable in many types of headache and in many cases of nausea. Its excessive use leads to great muscular irritability, gastritis, restlessness, and sleeplessness. It is held by many medical men that the effects of coffee as a beverage are wholly bad. They say that the caffeine in the coffee, or in other vegetable substances—tea, coffee, kola, guarana, and maté, or Paraguay tea—is a stimulant to the brain, nerves, heart, and kidneys. In small doses it helps to resist fatigue, increases mental power and promotes excretion of urine. Large doses or continued use, however, tend to make a person nervous, to induce irritability of the heart with considerable depression, and to upset the stomach. The mildest results of an overdose are a tendency to wakefulness, but there are recorded a number of deaths from heart-failure due to its employment in large doses. It is used largely as a heart-stimulant and diuretic, but its action is characterized by great variability. Individual susceptibility to it varies so greatly that what would be a poisonous dose for one person would scarcely affect another. The usual dose is half a grain to three grains.

COFFEE BUG (*Lecanium coffeæ*): insect of the coccus (q.v.) family, which lives on the coffee-tree, and is often extremely destructive to coffee-plantations. It has of late years devastated some in Ceylon. To check its ravages, the experiment was tried of introducing into the plantations the red ant (*Formica smaragdina*), abundant in many of the gardens and jungles of the island, which feeds greedily on the coffee bug; but the fierce assaults of the ants on the naked skins of the Malabar coolies, made them threaten to leave the estates.

COFFEE-HOUSE: see CAFE.

COF'FEE-TREE, KENTUCKY: see GYMNOCLADUS.

COFFER, n. *kŏf'fėr* [F. *coffre;* It. *cofano,* a chest: AS. *cof,* a receptacle (see COFFIN)]: a chest or trunk; chest sometimes of iron, usually of wood, for containing money; deep panel in a ceiling, or a square depression between the modillions of a cornice, afterward filled up with some ornament; hollow lodgment or trench across a dry moat: see CAPONIERE: V. to treasure up. COF'FERING, imp. COF'FERED, pp *-fėrd.* COFFER-WORK, rubble-work faced with stone. COFFER-DAM, water-tight structure used in engineering for excluding the water from the foundations of bridges, quay-walls, etc., so as to allow of their being built dry. Coffer-dams are generally formed of timber piles driven close together (called sheeting) in two or more rows, according to the depth of water and the nature of the bottom; the space between the rows, which may vary from four to ten ft., being spooned out, down to the solid and impervious bottom and filled up with clay puddle. Sometimes they are made of only one row of piles of the full height, calked above low-water, with a low or dwarf row outside to confine the puddle up to that level, or, where there is no wave or current, with a mere bank of clay thrown against the outside; and occasionally the upper work is formed of horizontal planking, fixed on open main piles, and calked in the joints.

The coffer-dams above spoken of all are called high-water dams, and exclude the water at all states of the tide. Where there are tides, they require to be provided with sluices, to allow the water, when first to be excluded, to flow out during the ebb—the sluices or gates being shut against it during the flood. The remainder of the water, and all leakages, must be drawn out by pumps, worked usually by a steam-engine. For moderately shallow foundations, especially where there is great rise and fall of tide, tidal-dams are often used. These are sometimes made of sheeting piles, but are often boxes or caissons formed of planking or of iron, weighted and sunk into the ground by digging inside in the same way that wells are sunk. These dams can only be used for about a couple of hours at low-water, and require to be pumped out every tide. All coffer-dams require to be strongly shored within, to prevent their being forced inward by the pressure of the external water; and the rows of piles require to be strongly bolted together, to overcome the pressure of the clay puddle, which otherwise would burst them.

COFFIN, n. *kŏf'fĭn* [OF. *cofin;* It. *cofano,* a chest, a case: Gr. *kophĭnos;* L. *cophĭnus,* a basket—*lit.,* a hollow cover or basket]: the chest or box in which a dead human body is inclosed previous to burial; the hollow part of a horse's hoof; the wooden frame surrounding the imposing-stone of printers; in *OE.,* a raised crust like the lid

of a basket: V. to inclose in a coffin. COF'FINING, imp. COF'FINED, pp. *-fĭnd.* COF'FINLESS, a. without a coffin. COFFIN BONE, the last bone in a horse's leg within the hoof. NAIL IN ONE'S COFFIN, any thing or act that tends to shorten one's life.

COF'FIN: ordinarily a chest or box in which dead human bodies are buried or deposited in vaults; but the term is sometimes applied also to a mold of paste for a pie, and in printing, to the wooden frame which incloses the stone on which the form is imposed. In farriery, it signifies the hollow part of a horse's hoof. What follows relates to the first of these significations.

It has been keenly disputed among scholars, whether it was more usual with the Greeks to bury their dead or to burn them (see BURIAL); but both customs unquestionably prevailed, and coffins, in the modern sense, were consequently known in Greece. They were called by various names (*soroi*, *púeloi*, etc.) and composed of various materials, the most common being baked clay, or earthenware. Their forms, also varied, sometimes resembling those now in use, sometimes consisting of a narrow, triangular box, the undermost side, of course, being considerably broader than the others. In Rome, the ancient practice was to bury the dead, not to burn them, though under the empire, and previous to the recognition of Christianity, burning became almost universal. The coffin in Rome was called *arca* or *loculus*, and was frequently of stone, sometimes of a peculiar kind of stone brought from Assos, in Troas, said to consume all the body, except the teeth, in forty days, and thence called sarcophagus, an eater of flesh: see SARCOPHAGUS. Many Roman stone-coffins have been found in Britain. The simplest of all coffins was that used by the British Celts and other rude nations, consisting of unhewn stones set on their edges, so as to cover the sides and ends of the grave, one or more flat stones being then laid over the body to form a lid. To these succeeded stone-coffins, commonly used for persons of the higher classes in Saxon times, and through the whole of the middle ages.

From Bede, however, we learn that the Saxons occasionally employed wood; and the common people, both then and in the subsequent Norman and English eras, were simply wrapped in cloth, and so put into the ground. The same custom seems to have been followed with monks down to a comparatively recent period. Stone-coffins were generally of a single block, commonly tapering from the upper end. In the hollow for the reception of the body, there was generally a part peculiarly fitted for the head, and a hole in the bottom to allow of the juices from the decaying body to escape. These coffins were not usually buried deeply in the earth, and were frequently placed so near the surface that the lids were visible, which, within a church, often formed part of the pavement. Sometimes they were even above ground altogether, and thus became the originals of altar tombs.

These lids were often covered with elaborate sculpture, representing crosses and other ornaments. Leaden coffins were used occasionally in the middle ages, as those recently brought to light in the Temple Church in London testify; but the slight wooden cases now in common use are probably of comparatively recent origin.

COFFIN, Charles Carleton, American novelist and lecturer: b. Boscawen, N. H., 1823, July 26; d. Brookline 1896, March 2. He began life as a civil engineer, and afterward gave his attention to telegraphy. In 1851 he began to write for the Boston papers; and during the Civil War and the Austro-Prussian war of 1866 was war correspondent for the Boston *Journal*, writing over the signature of 'Carleton'. His books include: *Days and Nights on the Battlefield* (1864); *Four Years of Fighting* (1866); *Our New Way Round the World* (1869); *Story of Liberty* (1878); *Boys of '76* (1879); *Old Times in the Colonies* (1880); *Life of Garfield* (1883); *The Drum-Beat of the Nation* (1887); *Marching to Victory* (1888); *Freedom Triumphant* (1891).

COFFIN, Sir Isaac, British admiral: b. Boston 1759, May 16; d. 1839, July 23. The son of a loyalist collector of customs, he became a midshipman 1773, lieut. 1778, and commander 1781, serving on the American coast during the war. He was made capt. 1790, rear adm. and baronet 1804, vice-adm. 1808, adm. of the blue 1814, and of the white 1830. He represented Ilchester in parliament 1818–26. Visiting, 1826, at Nantucket, whence his family came, he made provision for a school there. He died at Cheltenham.

COFFIN, James Henry, American scientist: b. Williamsburg, Mass., 1806, Sept. 6; d. Easton, Pa., 1873, Feb. 6. He was graduated at Amherst, 1828. He taught at Greenfield, Mass., Ogdensburg, N. Y., 1829–40; at Williams College 1840–3; Norwalk (Conn.) Academy 1843–6, when he was elected professor of mathematics and astronomy in Lafayette College, Easton, Pa., where he remained till his death. His reputation is due to his achievements in meteorology, a subject he began to investigate as early as 1838. In 1853 he published his theory of atmospheric circulation, including the principle quoted in Europe since 1860 as *Buys-Ballot's Law*. He wrote: *Solar and Lunar Eclipses* (1845); *Winds of the Northern Hemisphere* (1853); *Psychrometrical Tables* (1856); *The Orbit and Phenomena of a Meteoric Fire-Ball, 20 July* 1860 (1869); *Elements of Conic Sections* (1874); *The Winds of the Globe: or, the Laws of Atmospheric Circulation over the Surface of the Earth* (1875), completed by his son, S. J. Coffin. See Clyde, *Life of J. H. Coffin* (1882).

COFFIN, John Huntington Crane, American mathematician: b. Wiscasset, Maine, 1815, Sept. 14; d. Washington, D. C., 1890, Jan. 8. He was graduated at Bowdoin 1834, and in January 1836 entered the United States navy as professor of mathematics, serving in the West

India squadron, and at the Norfolk navy yard. He had charge of the mural circle in the Naval Observatory at Washington from 1843 to 1853, when he was transferred to the Annapolis Naval Academy, taking charge of the department of mathematics, and later astronomy and navigation. From 1865 to 1877 he had charge of the *American Ephemeris and Nautical Almanac.* In 1877 he was placed on the retired list. Bowdoin conferred the degree of LL.D. upon him in 1884, and in 1863 he became one of the corporate members of the National Academy of Sciences, named by Act of Congress. He published *Observations with the Mural Circle, with Formulas, Tables, and Discussions,* 1845–9, published in the observatory volumes for those years; *The Compass* (1863); *Navigation and Nautical Astronomy* (1868); *Observations of the Total Eclipse of the Sun, August* 1869, (1884).

COFFIN, JOSHUA, American antiquary: b. Newbury, Mass., 1792, Oct. 12; d. there 1864, June 24. He was graduated at Dartmouth College in 1817, and was a teacher for many years. Whittier was one of his pupils, and addressed to him the poem *To My Old School-Master.* Coffin was an ardent abolitionist, being a founder and first recording secretary of the New England Anti-Slavery Society 1832. He compiled: *Sketch of the History of Newbury, Newburyport, and West Newbury,* 1635–1845 (1845); *List of Some of the Descendants of Mr. E. Woodman (of) Newbury, Mass.,* 1635 (1855); *The Toppans of Toppan's Lane: Their Descendants and Relations* (1862).

COFFIN, LEVI, American philanthropist: b. near New Garden, N. C., 1798, Oct. 28; d. Avondale, Ohio, 1877, Sept. 16. He was a farmer's son, and early evinced interest in the negro's welfare. Proving successful in business, he actively aided slaves to gain freedom, largely through the 'underground railroad.' Thousands of escaping slaves were aided on their way to Canada by him. He helped found the Freedman's Bureau in 1863, and after the Civil War was active in schemes to advance the welfare of the colored people. He was known popularly as 'President of the Underground Railroad.'

COFFIN, ROBERT BARRY, American journalist and miscellaneous writer: b. Hudson, N. Y., 1826, July 21; d. Fordham, N. Y., 1886, June 10. He was on the staff of the *Home Journal* of New York (1858), and was also art critic of the *Evening Post.* His humorous sketches, which appeared in many periodicals over the pen-name 'BARRY GRAY,' have been extensively read. Among his publications are: *My Married Life at Hillside* (1865); *Cakes and Ale at Woodbine* (1868); and *The Home of Cooper* (1872).

COFFIN, ROBERT STEVENSON, American printer and poet: b. Brunswick, Maine, 1797; d. Rowley, Mass., 1827, May 7. He served his apprenticeship as a printer in Newburyport; was a sailor during the War of 1812, and at one time a prisoner on board a British frigate, and

subsequently worked on newspapers in Boston, New York, and Philadelphia, publishing occasional verses in the poet's corner. He came to be known, perhaps from his own pretentiousness, as 'The Boston Bard,' and his poems were collected in a volume entitled the *Oriental Harp, Poems of the Boston Bard.*

COFFIN, William Anderson, American painter: b. Allegheny, Pa., 1855, Jan. 31. He was graduated at Yale 1874, studied art in the United States 1874–7, and then in Paris under Leon Bonnat 1877–82. He opened a studio in New York 1882, and has become well known as a painter of landscapes and figure pieces. In 1886 he won the Hallgarten prize of $200; was awarded a medal at the Paris Exposition 1889; received the Webb prize of the Society of American Artists 1891; was gold medallist of the Philadelphia Art Club 1898, and received a silver medal at the Charleston Exposition 1902 and St. Louis 1904. He was art critic of the New York *Evening Post* 1886–91, and of the New York *Sun* 1896–1900. In 1901 he was director of fine arts at the Pan-American Exposition in Buffalo, N. Y. Among his best known pictures are: *The Rain*, in the Metropolitan Museum, N. Y.; *Une académie de peinture moderne; An Examination* (time of Louis XIII.); *The Close of Day* (1881); *The Hayfield* (1886).

COG, n. *kŏg* [Ir. and Gael. *gogach*, nodding, reeling: W. *cocos*, cogs of a wheel: Sw. *kugge*, a prominence in an indented wheel. It. *cocca*, a notch]: that which causes to nod or reel; the tooth on the rim of a wheel: V. to furnish with cogs. Cog'ging, imp. Cogged, pp. *kŏgd.* Cog-wheel, a wheel with teeth on the rim.

COG, n. *kŏg* [W. *cwch*, a kind of boat: Scot. *quaich;* Gael. *cuach*, a drinking-cup]: in *Scot.*, a drinking-cup of horn or wood; a circular wooden vessel for containing milk, broth, etc.; a little boat. Coggie, n. *kŏg'gĕ*, a little cup or bowl of wood or horn.

COG, v. *kŏg* [Dut. *kokelen*, to juggle: It. *coccare;* Sp. *cocar*, to mock, to cajole: Gael. *caog*, to wink, to connive]: in *OE.*, to deceive by rapid sleight of hand; to obtain by flattering or wheedling; to wheedle; to cheat: N. a piece of cheating; deceit; a trick. Cogger, n. *kŏg'gĕr*, a swindler; a cheat. To cog dice, to load them so that they shall fall in a particular direction.

COGENT, a. *kō'jĕnt* [L. *cogens*, or *cogen'tem*, driving together, compelling—from *con*, together; *ago*, I drive]: urgent; pressing on the mind; not easily resisted convincing. Co'gently, ad. *-lĭ.* Co'gency, n. *-jĕn'sĭ*, force or pressure on the mind; urgency.—Syn. of 'cogent': forcible; powerful; convincing; urgent; irresistible; resistless; conclusive; strong.

COGGESHALL, *kŏg'gĕs-hawl* or *kŏg'shal:* town in the n.e. of Essex, on the left bank of the Blackwater, 44 m. n.e. of London. It lies partly on low ground, near the

river, and partly on some gentle ascents rising from it. There is an endowed grammar-school, founded by Sir Robert Hitcham. The church is one of the finest in Essex, and has been recently restored at great cost. It has manufactures of silk, velvet, and isinglass. It is supposed to have been the Roman *Canonium*, and the remains of a Roman villa have been found. It has the ruins of a Cistercian abbey, founded by King Stephen 1142. Pop. 3,830.

COGHLAN, *kŏg'lan*, Charles Francis, American actor; b. Paris, France, 1841; d. Galveston, Texas, 1899, Nov. 27. He was educated for the bar in London, but went on the stage, making his American début in 1880 as Captain Absolute in *The Rivals*. He took leading parts for many years, being a refined and capable impersonator of old school gentlemen. He wrote: *Jocelyn; Lady Barter;* and other plays.

COGHLAN, Joseph Bullock, American naval officer: b. Frankfort, Ky., 1844, Dec. 8. Graduated in 1863 from the United States Military Academy, he at once saw service as ensign in the Civil War, in 1868 rose to be lieutenant-commander, and later served successively on board the Richmond, Saugus, Monongahela, and Indiana. In 1882 he was promoted commander, and in 1896 captain. As commander of the Raleigh of the Asiatic station from 1897 he took part in the battle of Manila Bay, 1898, May 1. On May 2–3 he commanded expeditions for the reduction of all Spanish batteries at the mouth of the bay, and on July 7 an expedition for the capture of Isla Grande, Subig Bay, Luzon. He was commissioned rear-admiral in 1902 and commanded the Caribbean squadron of the North Atlantic fleet from 1902–3.

COGHLAN, Rose, American actress: b. Peterborough, Eng., 1853. She rose from humble roles in England to be leading lady, making her American début in 1872. From 1880 to 1889 she was Wallack's leading lady and since 1893 has 'starred' in various American and English companies. She has played in *Macbeth; Nicholas Nickleby; The Woman in White; Twelfth Night; East Lynne; All for Her; Forget-me-not; A Scrap of Paper; The World; The Silver King; Moths; The School for Scandal; Hamlet; Diplomacy; A Woman of No Importance*, etc. See Browne and Austin, *Who's Who on the Stage* (1906).

COGITATE, v. *kŏj'ĭ-tāt* [L. *cogĭtātus*, thought, mused—from *con, agĭto*, I put in motion: It. *cogitare*]: to put in motion or turn over in one's mind; to think; to meditate. Cog'itating, imp. Cog'itated, pp. Cog'itable, a. *-tă-bl*, capable of being conceived, as a thought. Cog'ita'tion, n. *-tā'shŭn*, act of thinking. Cog'itative, a. *-tĭv*, given to musing or meditating.

COGITO ERGO SUM: see Descartes.

COGNAC, n. *kōn'yăk* [after a town in France, where made]: the best kind of French brandy—sometimes, but incorrectly, spelled Cogn'iac.

COGNAC, *kōn-yâk′:* town of France, dept. of Charente, with a pleasant situation on an old castle-crowned hill overlooking the river Charente. Cognac is celebrated as the place where the best brandy in France is manufactured, to which it gives its name. Not half the quantity of so-called *Cognac* brandy, however, is manufactured here. The cultivation of the vine and distillation of brandy are the chief industry of the inhabitants of the district. Francis I. was born here. Pop. about 20,000.

COGNATE, a. *kŏg′nāt* [L. *cognātus*, connected by birth —from *con*, together; *nātus*, born: It. *cognato:* F. *cognat*]: related or allied by blood; proceeding from the same stock or family; having relation to; allied: N. a male relative through the mother. COGNA′TION, n. *-nā′shŭn*, descent from the same origin; relationship between males and females descended from same father. AGNATION refers to males only: see AGNATE.

COGNIARD, *kon-ye-ar′*, THÉODORE: 1806, Apr. 30—1872, May 25. He and his brother, Hippolyte, who retired 1869, wrote numerous vaudevilles, etc., among the most successful of which was *La biche aux bois.* He was director of the Variétés Theatre, and initiated opera bouffe, producing Offenbach's *Belle-Hélène, Barbe-bleue, Grande Duchesse,* and *Périchole.* He died in Paris.

COGNITION, n. *kŏg-nĭsh′ŭn* [F. *cognïtion*—from L. *cognĭtĭōnem*, knowledge—from *con*, together; *nosco*, I know: It. *cognizione*]: knowledge from experience or inspection; perception.

COGNITION, in psychology and philosophy. Cognition, or the cognitive powers, finds its most general use in psychology as a term to include all of the intellectual or knowing processes as opposed to active and feeling processes. In this sense the cognitive aspect of mind covers everything from the simplest sensation to reason and includes perception, memory and imagination. It is also used less generally by many writers to designate the more reflective processes alone, and by Titchener among others as an immediate or reflex form of the recognition process. The more common, and in view of the wide divergence of particular applications, the more satisfactory usage is in the vaguer first sense of the term.

COGNIZANCE, n. *kŏg′nĭ-zăns* or *kŏn′nĭ-zăns* [OF. *cognoissance*, knowledge; *connoissant*, knowing—from L. *cognoscĕrĕ*, to know—from *con*, *gnoscĕrĕ*, to know]: knowledge by recollection; judicial notice or knowledge; legal acknowledgment or confession; jurisdiction or right to try; in *heraldry*, a badge (q.v.), or crest (q.v.), or other heraldic device by which a person may be known; perception; observation; knowledge. COGNIZANT, a. *kŏg′-nĭ zănt*, or *kŏn-*, having knowledge of. COGNIZE, v. *kŏg-nīz′*, to take notice of a thing. COGNI′ZING, imp. COGNIZED, pp. *kŏg-nīzd′*. COGNIZABLE, a. *kŏg′nĭ-ză-bl*, or *kŏn′-*, that falls or may fall under notice or observation; that may be heard, tried, and determined, as by a judge.

Cog'nizably, ad. *-blĭ.* Cognizee, n. *kŏg-nĭ-zē',* or *kŏn-,* in *law,* one to whom a fine of land is acknowledged. Cognizor, n. *kŏg-nĭ-zōr',* or *kŏn-,* one who acknowledges the right of the cognizee in a fine; the defendant.

COGNOMEN n. *kŏg-nō'mĕn* [L. *cognōmen,* a surname—from *con,* together; *nōmen,* a name]: family name, or surname, the last of the three names usual among Romans of social position: it indicated his *gens* or family; while the first name was his *præ-nomen,* and the second his *nomen.* Cognom'inal, a. *-nŏm'ĭ-năl,* pertaining to the surname.

COGNOSCE, v. *kŏg nŏs* [L. *cognoscĕrĕ',* to examine, to investigate—from *con,* together; *noscĕre,* to know: It. *cognoscere;* OF. *cognoissance,* knowledge]: in *Scotch law,* to inquire into a matter; to investigate into the facts of a case. Cognos'cing, imp. Cognosced', pp. *-nŏst'.* Cognos'cible, a. *-sĭ-bl,* capable of being known or made the object of knowledge. Cognos'cibil'ity, n. *-bĭl'ĭ-tĭ,* quality of being cognoscible.

COGNOSCENTI, n. plu. *kŏg'nŏs sĕn'tĭ* [It.]: persons possessing or professing a critical knowledge of works of art, somewhat beyond that of amateurs.

COGNOVIT, n. *kŏg-nō'vit* [L. *cognōvĭt,* he has acknowledged]: in *law,* acknowledgment, usually in writing, of the plaintiff's claim by the defendant, authorizing thereby judgment and execution against himself. It usually proceeds on the condition that defendant shall be allowed a certain time for the payment of the debt or damages and costs.

COGSWELL, *kogz'wĕl,* Joseph Green, ll.d: b. Ipswich, Mass., 1786, Sep. 27; d. 1871, Nov. 26; bibliographer. He graduated at Harvard 1806, made a voyage to India, practiced law a few years at Belfast, Me., was tutor at Harvard 1813–15, and spent four years, 1816–20, in study at Göttingen, and elsewhere with Ticknor and Everett. Returning, he was professor of geology and mineralogy and librarian at Harvard 1820–23. With George Bancroft, he established the Round Hill School at Northampton, Mass., 1823, and conducted it till 1836. After teaching a short time at Raleigh, N. C., he edited the *New York Review* 1838–42. Appointed secretary of legation to Spain 1842 at the request of his friend Irving, he was detained by J. J. Astor, and lived for some years with him, determining plans and collections for the great library: with Halleck, Irving, and others, he was a trustee of its fund, and its superintendent 1848–60. In its interest he made three visits to Europe to purchase books. His own bibliographical collection was presented to it, as a cabinet of 5,000 minerals had previously been to Harvard, and 4,000 dried plants of Europe to the botanic garden at Cambridge. He removed to Cambridge 1862, and died there. His publications were confined to the catalogue of the Astor Library, 8 vols., and contributions to *Blackwood's,* the *N. American Review,* etc. A me-

morial volume by Anna E. Ticknor was privately printed in Boston 1874.

COGSWELL, Mason Fitch, American physician: b. Canterbury, Conn., 1761, Sept. 28; d. Hartford, Conn., 1830, Dec. 10. He was adopted by Samuel Huntington, president of the Continental Congress and governor of Connecticut, and graduated valedictorian at Yale 1780. He studied medicine with his brother James, at the soldiers' hospital in New York during the Revolution, and eventually became one of the best-known surgeons in the country. He was the first in the United States to remove a cataract from the eye, and to tie the carotid artery (1803). Mainly through his influence the first asylum for deaf-mutes was founded in this country at Hartford, and his daughter Alice was its first pupil. He was also a founder of the Retreat for the Insane in the same city.

COHABIT, v. *kō-hăb′ĭt* [L. *cohabĭtārĕ*, to dwell together —from *con*, together; *habĭto*, I dwell]: to live together at bed and board as husband and wife, usually applied to a man and a woman without marriage. Cohab′iting, imp.: N. the act of dwelling together as husband and wife. Cohab′-ited, pp. Cohab′ita′tion, n. *-tā′shŭn*, the act of living together as husband and wife; held under Scotch law as sufficient proof of a marriage as having been constituted by the mutual consent of the parties.

COHAN, George M., American playwright and actor: b. Providence, R. I., 1878, July 4. He has appeared in the majority of his plays with his father, Jerry J., his mother, Helen F., and his sister Miss Josephine, the 'Four Cohans' being well-known on the stage. He has appeared in the following plays, many of which he has himself written: *The Two Barneys; Peck's Bad Boy; The Wise Guy; The Governor's Son; Running for Office; Little Johnny Jones; Popularity; Forty-five Minutes From Broadway; George Washington, Jr.;* etc.

COHASSET, *kō-hăs′sĕt:* town of Norfolk co., Mass., detached from the rest of the co., and bounded n. and e. by Massachusetts Bay, and s. and w. by Plymouth co. It has a rocky coast, and is traversed by the South Shore railroad; the village of Cohasset, near its e. end, is 21 m. s.e. from Boston. Minot's Ledge lighthouse, stands in lat. 42° 16′ n., long. 70° 45′ w. The chief industries of Cohasset are mackerel-fishing and keeping summer boarders. Pop. (1910) 2,585.

COHEIR, n. *kō′ăr* [L. *con*, together; OF. *hoir;* L. *hæres*, an heir]: one who inherits with another, or with others: see Heir: Succession. The fem. is Co-heiress.

COHEN, n. *kō′hĕn*, Cohanim, n. plu. *kō′hăn-ĭm* [Heb.]: among the *Jews*, primarily one who ministers as a priest; a minister of God; a minister of the king.

COHEN, Alfred J. See Dale, Allen.

CO′HEN, Jacob da Silva Solis, American physi-

cian: b. New York, 1838, Feb. 28. He graduated M.D. at the University of Pennsylvania 1860, and in 1861 became assistant surgeon of the 26th Pennsylvania regiment, serving with the expedition to Port Royal and with the South Atlantic blockading squadron till January, 1864. In 1866 he settled in practice in Philadelphia, and has made a specialty of diseases of the throat and chest. He has written many important articles and books on these topics, chief of which are: *Diseases of the Throat and Nasal Passages* (2d ed. 1879); *The Throat and the Voice* (1880); *Treatise of Inhalation*; *Croup in its Relations to Tracheotomy*, and since 1880, 30 other special studies, which have been published in the New York *Medical Journal*, Philadelphia *Medical News*, etc.

COHEN, Katherine M., American artist: b. Philadelphia 1859, March 18. Receiving her early training at private schools and Ogontz, Pa., she displayed a taste for art which was developed by study at School of Design, Pennsylvania Academy of Fine Arts, Student's Art League under Saint Gaudens, and six years in Paris schools. She has been engaged in sculpture since 1880 and her chief works have been portraits and bas-reliefs, decorative works and paintings of figure and landscape. Among her principal successes have been: Portrait of Gen. Beaver for Smith Memorial, Fairmount Park; *The Israelite; Priscilla; Rabbi-ben-Ezra; Romola; Lorna Doone.*

COHEN, Mendes, American civil engineer: b. Baltimore 1831, May 4. Educated in private schools he soon displayed a bent toward engineering, and engaged in practical study at the locomotive works of Ross Winans, Baltimore, 1847–51. His active service became continuous, first at the engineer corps of the B. & O. R.R. 1851–5; then as assistant superintendent Hudson R.R. 1855–61; and, 1861–3, as president and superintendent O. & Miss. R.R. (of Illinois). For some years he was engaged in the special service of Phila. & Reading, and became comptroller and assistant to the president of the Lehigh Coal and Navigation Company. In 1894 he was appointed by President Cleveland as member of the board to examine and report a route for the Chesapeake & Delaware Ship Canal. In Baltimore he has long been honored with important civic trusts.

COHEN, Solomon, American lawyer: b. Georgetown, S. C., 1802, Aug. 15; d. Savannah, Ga., 1875, Aug. 14. At an early age he became a lawyer and he soon was classed with leading lawyers of his day and state, who directed the political thought and education of the people. In 1838 he settled in Savannah, where he maintained a leading position at the bar, attaining so deserved a popularity that he was sent to the legislature, and assumed a prominent part in municipal affairs. He was one of the founders of the system of public education in the state. He was appointed postmaster of Savannah by President Pierce, and was con-

tinued by President Buchanan, holding the same position under the Confederate government. In 1866 he was elected member of congress from the first district of Georgia, but was not allowed to serve.

COHEN, Solomon Solis, American physician: b. Philadelphia, 1857, Sept. 1. After a course of study at the Central High School in his native city, he graduated from Jefferson Medical College in 1883, and made so thorough a record for scholarship that from 1888–1902 he was lecturer in clinical medicine at Jefferson Medical College, and from 1889–1902 professor of clinical medicine and therapeutics at Philadelphia Polyclinic and College of Graduates in Medicine. Since 1902 he has been professor of clinical medicine at Jefferson Medical College. He was elected president of the Philadelphia County Medical Society, 1898–9. His published writings include: *Therapeutics of Tuberculosis; Essentials of Diagnosis*, and he has edited *System of Physiologic Therapeutics*, etc.

COHERE, v. *kō-hēr'* [L. *cohærērĕ*, to be connected—from *con*, together; *hærĕō*, I stick or cleave; *hæsus*, stuck]: to stick together; to be well connected; to depend on; to agree or suit. Cohe'ring, imp. Cohered', pp. *-hērd'*. Cohe'rent, a. *-hē'rĕnt*, sticking together; related in some form or order; consistent; having a due agreement of parts. Cohe'rently, ad. *-lĭ*. Cohe'rence, n. *rĕns*, or Cohe'rency, n. *-rĕn-sĭ*, union of parts of the same body; the uniting of two bodies by attraction; consistency. Cohe'sion, n. *-hē'zhŭn* [F. *cohésion*—from L. *cohæsĭōnem*]: the act of sticking together; that power of attraction which unites the particles of matter and preserves the forms of bodies. Cohe'sive, a. *-sĭv*, that has the power of sticking. Cohe'sively, ad. *-lĭ*. Cohe'siveness, n. the quality of being cohesive or sticking together.—Syn. of 'cohere': to coalesce; amalgamate; unite; join; cleave; adhere; stick; suit; fit; agree.

COHERER: an electrical instrument, part of the receiver in Marconi's system of wireless telegraphy, consisting of a small glass tube about one and a half inches long, into which two silver plugs are tightly fitted. A small gap separates these plugs, and in this gap a mixture of nickel and silver filings is placed. Under ordinary conditions the resistance of this gap is too high to allow of any current passing from the local cell or battery; but under the influence of electric waves these filings instantly cohere, and the tube becomes a comparatively good conductor. Connected with this tube is a cell and a relay. By the cohesion of the filings the current from the cell is allowed to pass through the tube, and actuate the relay. When once this is achieved, it becomes a very simple matter to make a bell ring or work a Morse siphon.

The filings, however, having cohered under the influence of an electric wave remain in this condition

unless shaken up. An automatic tapper, or discoherer, somewhat similar to an electric-bell tapper, minus the bell, is so adjusted as to tap the tube and shake the filings up, thus discohering them and bringing them to their normal condition, when they are again in a state to receive another impulse.

The oscillations set up by the transmitter at a distant station act on the vertical conductor or resonator which is connected with the sensitive tube at the receiving station, cohere the filings in the tube, and allow the local cell to actuate the relay. This, in its turn, causes the larger battery to pass a current through the tapper, or interrupter, and also through the electro-magnets of the recording instrument. See WIRELESS TELEGRAPHY.

COHE'SION [see COHERE]: species of attraction (q.v.) by which the particles of matter are held together so as to form bodies (see AHDESION); and its measure is the resistance which bodies offer to any mechanical force tending to separate their parts. In gaseous bodies, cohesion is altogether lacking; their atoms even repel one another. In liquids, notwithstanding, the ease with which the particles slide on one another, the operation of cohesion is distinctly seen in the formation of drops. Cohesion is strongest in solids; and degrees of cohesion in this case, are much the same thing as degrees of solidity. It is the force of cohesion that constitutes the strength of materials (q.v.). After the particles of a body have been completely separated, it is found that through cohesion they will reunite, if pressed sufficiently close together. Two clean, smooth, freshly-cut pieces of lead placed together, will cohere so as to require considerable force to separate them; and it has not unfrequently happened in plate-glass manufactories, that polished plates of glass have cohered so completely that they have been cut and worked as a single piece.

If the particles of matter had no property in relation to one another, except their mutual impenetrability, the universe, it has been said, would be like a mass of sand, with out variety of state or form. As it exists, however, it demonstrates the cross-action of several universal properties of matter. Among those which most effect its state and form, are heat and cohesion. It may be said that bodies assume the solid, liquid, or aëriform states, according to the proportion that the cohesion of their particles bears to those forces which, like heat, tend to separate them: see HEAT. Heat communicated to a solid body always diminishes the force with which the attraction of aggregation or cohesion is exerted; if the heat be increased to a sufficient extent the cohesion is so far weakened that the body passes into the liquid form; and if carried still farther, the attractive force is entirely overcome, repulsion is established between the particles, and the body passes into the gaseous state. Upon modifications of the cohesive force and its relations to other molecular forces, seem to depend such properties as elasticity, brittleness, ductility, etc.

COHESION-FIGURES: remarkable class of figures produced in liquids by the action of their natural cohesive attraction for the surfaces of other liquids or solids on which they are deposited, or by induced cohesive attraction effected by means of electricity. They may be described under four heads: (1) Surface-cohesion Figures of Tomlinson; (2) Submersion-figures of Tomlinson; (3) Breath-cohesion Figures of Strethill Wright; (4) Electric-cohesion Figures of Strethill Wright.

1. *Surface-cohesion Figures of Tomlinson.*—This class of figures was submitted to the Chemical Section of the British Assoc. by Charles Tomlinson of King's College, London, 1861. He showed that a drop of an 'independent liquid,' such as an oil, alcohol, or ether, when gently placed upon chemically-clean water, spreads itself out into a definite figure as it enters into solution or diffuses itself over

Fig. 1.

the surface. He stated that each figure is characteristic of the fluid employed, and that any change in the chemical or molecular state of the fluid is attended with a corresponding change in its 'cohesion-figure.' Hence he recommended that these figures should be applied to the qualitative analysis of various liquids whose ordinary methods of testing were inoperative or inadequate. *Cohesion analysis,* performed as he directs, has been applied with signal success in the verification of oils and balsams, and as a ready means of indicating the changes which take place in those bodies by age or oxidation. The cohesion figures of Tomlinson, from their beauty and variety, combined with their exquisite harmony of coloring, have been used, like those of the kaleidoscope of Brewster, to suggest forms for the pattern-designer.

In the production of cohesion-figures, water was the receiving surface generally employed by their discoverer; but in certain cases, he employed other fluids, such as mer-

cury, acetic acid, cocoanut oil, and castor oil in the cold state; and spermaceti, white wax, lard, and sulphur in a state of fusion. On each of these substances, the liquid to be tested formed a different and characteristic figure, and hence additional means of comparison and verification were afforded. Fig. 1 shows the surface-cohesion figure of oil of lavender on water.

2. *Submersion-figures of Tomlinson.*—In the *Philosophical Magazine*, 1864, June, this author brought forward a new series of cohesion-figures of liquids, in which the drop, being of great specific gravity, instead of forming a figure on the surface, sank beneath it, and formed a figure as it slowly made its way to the bottom of the vessel. In order to exhibit these phenomena, he employed a column of liquid in a cylindrical vessel. He states that a solution of cochineal dropped into water formed a figure typical of a large class of these figures. A drop laid on the surface sank down, opened into a ring, which became depressed at two opposite points; from these points, lines of fluid descended, which terminated in secondary rings; the secondary rings, in like manner, dropped down into lines carrying tertiary rings, and so on, until the lower part of the vessel became crowded with a complicated system of drooping rings and lines. Oil of lavender in a column of alcohol, fusil oil in paraffine oil, benzole, in ether, etc., gave various and distinctive figures. He found that similar figures were obtained by the use of oils dropped into columns of hot spermaceti, lard, wax, etc; and that these figures underwent considerable variation under the influence of change of temperature. Fig. 2

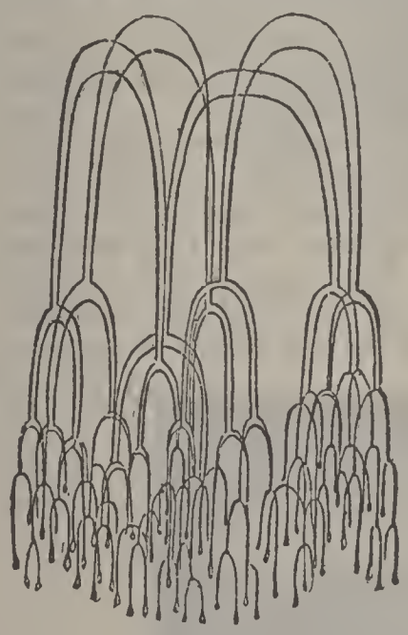


Fig. 2.

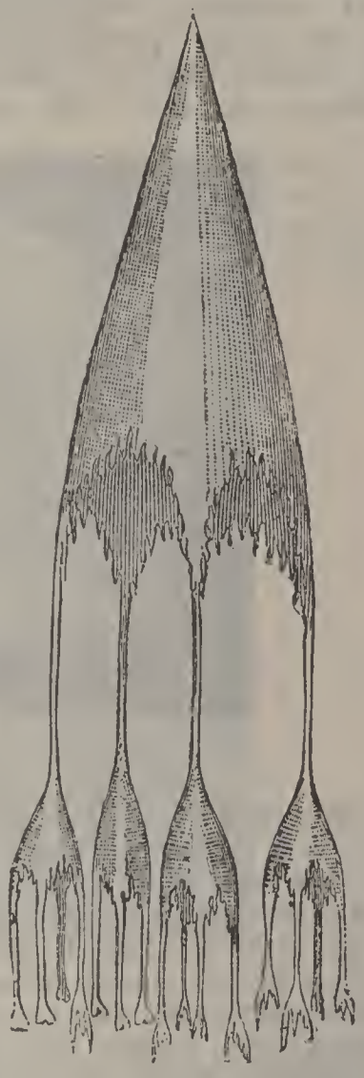


Fig. 3.

shows the submersion figure of oil of lavender in alcohol; fig. 3, that of fusel oil in paraffine oil. Each of these figures, whether surface-figures or submersion-figures, is characteristic of the fluid which forms it; and Tomlinson considers, with regard to the *surface-figure*, that it is a function of the cohesive force and diffusibility of the liquid, and the adhesion of the surface on which it is deposited; he considered also that it might be a function of the solubility and the diffusibility of the fluid in question, or of the solubility, the density, and the molecular attraction; while with regard to the *submersion-figure*, he thought each figure to be a function of the solubility, the density, and the molecular attraction.

3. *Breath-cohesion Figures of Strethill Wright*, discovered by Dr. Strethill Wright, of Edinburgh, and communicated to the Royal Scottish Soc of Arts, 1864, Dec. 12. This author, who had long been engaged in observing phenomena connected with the modification of cohesive attraction produced between solids and fluids by heat and electricity, was induced to take up the subject afresh by the publications of Tomlinson, and one of the results was the production of his so-called 'breath-cohesion figures.' He employed as the recipient surface

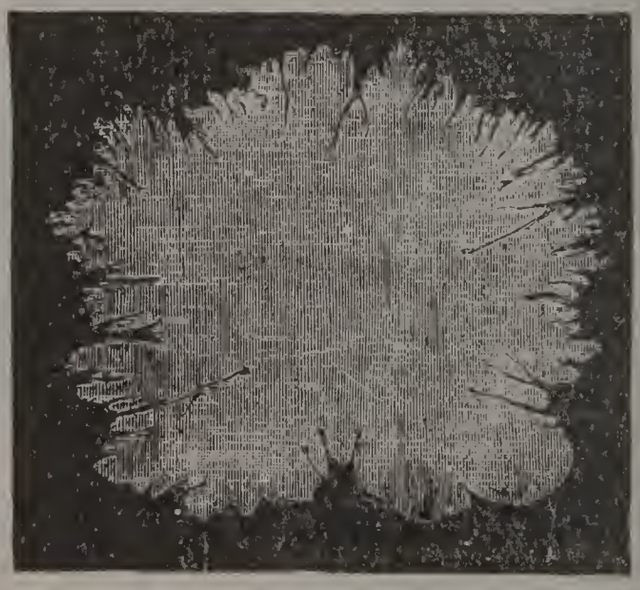


Fig. 4.

a freshly-split, and therefore chemically-clean, surface of mica; on this he placed a single drop of the fluid to be experimented on. He then breathed upon the surface, and instantly the drop flashed out into a figure characteristic of the fluid of which it was composed. By this means, a variety of substances, such as vegetable extracts, tinctures, and essential oils, and animal fluids, such as serum, vaccine lymph, bile, mucus, and urine in its various pathological conditions, could be examined. By dusting the figures with hair-powder or lycopodium, he was also enabled to render them permanent, and to exhibit them in his lectures, expanded to a diameter of 14 feet by the oxyhydrogen microscope. Fig. 4 shows the cohesion-figure of vaccine

lymph; fig. 5, that of urine containing a small proportion of

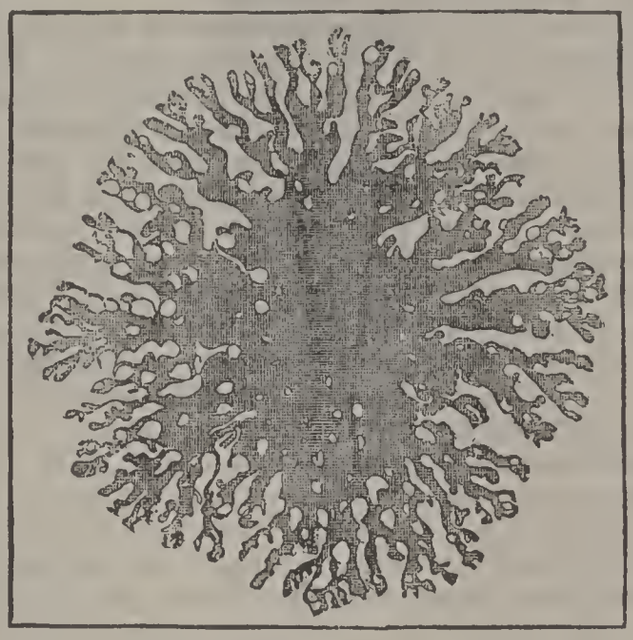


Fig. 5.

bile; fig. 6, oil of bitter almonds. In general appearance, the breath-cohesion figures bear strong resemblance to vegetable forms, especially to the fronds of the *Desmidieæ*. In many of them, as in the *Desmidieæ*, a distinct bilateral

Fig. 6.

symmetry is apparent. Others simulate the forms of the larger *Algæ*. A great many are resplendent with the hues of the soap-bubble, arranged in concentric bands and curves of excessive beauty; while others are veined throughout so as to resemble sections of agate. Dr. Wright considers that the breath-cohesion figure is the product of electric

attractive force developed on the freshly-split mica, as a well-known consequence of cleavage.

4. *Electric-cohesion Figures of Strethill Wright*, described by Dr. Wright to the Royal Scottish Soc. of Arts, 1864, Apr. 11. They are produced by electrifying drops of various fluids placed on a clean plate of glass, vulcanite, mica, or other smooth non-conducting substance. By this method, an endless variety of beautiful dendritic figures are produced, differing not only with the fluid employed, but also with the slightest change in the character of the surface on which it is placed, and with the electricity, whether positive or negative, which is imparted to the drop. The electric-cohesion figures are produced in the following manner: A sheet of plate-glass is laid upon a plate of blackened metal, and in the centre of the glass a drop of the fluid to be operated on is deposited with a clean glass rod. The metal plate and the drop are then connected with the opposite poles of an induction coil (capable of giving a spark of about half an inch in length) in full action, and immediately branches protrude from the drop, which slowly creep over the glass until they closely cover a circle of four or five inches. The accompanying figure (fig. 7) shows that produced on a surface of mica by the positive

Fig. 7.

pole from a solution of cyanide of potassium. Sulphuric acid, and solutions of potash, deliquescent salts, and organic fluids, give the best figures; while nitric and muriatic acids and distilled water do not form figures under the electric influence.

COHOBATION, n. *kō-hŏb-ā'shŭn* [F. *cohabation;* Sp. *cohobacion*—from L.L. *cohobatio*—from *cohobo*]: the operation of distilling the same liquid continually with fresh portions of the same substance, as with flowers, leaves, etc.,

so that the essential oils and other volatile substances accumulate in the distillate.

COHOES, *ko-hōz* or *ko-hôz′:* city of Albany co., N. Y., 9 m. n. of Albany and 3 m. n.w. of Troy, on the river bank of the Mohawk at its junction with the Hudson, and at the junction of the Erie and Champlain canals. The Delaware & Hudson and the N. Y. Central pass through it. Cohoes was incorporated as a village 1848, and as a city 1870. The falls, 70 t sheer and abt. 1,000 ft. wide, combine picturesque beauty with a magnificent water power. 25 cotton goods mills produce yearly knit underwear to the value of $4,600,000. The manufacture of special knitting machinery has nearly doubled in the last ten years; that of axes and edge-tools goes on at the same rate, producing some $400,000 annually. In 1900 the city had 316 manufacturing establishments, employing $11,316,482 capital and 8,673 persons, paying $3,140,668 for wages and $6,120,342 for materials, and having products of a combined value of $11,636,130. The principal articles were cotton, woolen, and worsted knit goods, foundry and machine shop products, boots and shoes, tobacco, and paper bo es. The city has four wards, and is governed by a mayor and eight aldermen. It has spent $90,000 on the construction of a reservoir holding 70,000,000 gallons, new pumping apparatus, and street mains. An electric lighting plant, operated by water, was introduced 1887. There are numerous schools and churches, several of which have fine buildings, banks, and newspapers. Though the first knitting mill in the United States was established here, 1832, statistics show the main growth of the place to be comparatively recent. Pop. (1910) 24,709.

COHORT, n. *kō′hŏrt* [L. *cohor′tem*, a place inclosed, a company of soldiers: It. *corte;* F. *cohorte*—from OF. *court*]: among the *anc. Romans*, a body of foot-soldiers varying from 420 to 600; a body of soldiers; usually there were 10 cohorts to a Legion (q.v.).

COHORTATION, n. *kō-hort-ā′shŭn* [L. *cohortatio*—from *cohortor*, to exhort, to encourage]: exhortation; encouragement by words

COHOSH, *kō-hŏsh′* (*Cimicifuga racemosa*), also called black snakeroot, is a plant belonging to the crowfoot family (*Ranunculaceæ*). Besides this species there are about four others also called cohosh, herb-christopher, and rattlesnake herb, which are widely distributed from Nova Scotia and Anticosta, south to Georgia, westward to Missouri, and northward to British Columbia. It is an erect perennial herb growing in the woods. The plant has powerful medicinal properties and is a valued remedy in rheumatism, epilepsy, etc. The blue cohosh (*Caulophyllum thalictroides*) is a powerful antispasmodic and emmenagogue. It is also a diaphoretic and diuretic, and has been used successfully in this country as an anthelmintic.

COIF, n. *koyf* [F. *coiffe*, a hood or cap—from mid. L. *cofĕă*, or *cofĭă:* It. *cuffia:* comp. Gael. *ciabh*, the hair: Ar. *kufiyah*, a head-kerchief]: a caul or cap; a cap to cover a baldness; the distinguishing badge of a sergeant-at-law: V. to cover or dress with a coif. Coif'ing, imp. Coifed, pp. *koyft.* Coifer, v. *koyf'ėr*, to dress the hair. Coif'ering, imp. Coif'ered, pp. *-ėrd.* Coiffure, n. *koyf'fûr* [F.]: a head-dress.

COIF: covering for the head in general, especially for the circular portion of the crown, which the Rom. Cath. clergy are in the habit of shaving, and which is thence called the tonsure. The general meaning of the word is preserved in the verb to coif, coiffed, etc., and still more decidedly in the noun *coiffure*, which, so late as Addison's time, was English as well as French. In England its special signification is now limited to the caul or cap worn by sergeants-at-law, the only reminiscence of the tonsure among lawyers. On attaining the Degrees of the coif, or, what is the same thing, becoming a sergeant, a barrister retires from the Inn of Court by which he was called to the bar, and becomes a member of Sergeant's Inn: see Sergeant-at-law. Coif, in the armor of the middle ages, was a sort of defensive hood, surmounted by a helmet, sometimes continuous with the hauberk, sometimes separate.

COIGNE, n. *koyn* [Scot. *coin;* F. *coin;* OF. *coing*, a corner—from L. *cūnĕŭs*, a wedge]: a corner: a cornerstone; a jutting angle; a wedge: see Quoin.

COIL, n. *koyl* [F. *cueillir*, to collect—from L. *colligĕrĕ*, to gather: It. *cogliere:* Sp. *coger*]: a rope gathered into a circular heap: V. to gather or wind into a circular heap, as a rope or serpent. Coil'ing, imp. Coiled, pp. *koyld.* Coil-drag, a tool to pick up pebbles, bits of iron, etc., from the bottom of a drill-hole.

COIL, n. *koyl* [Gael. *coile* and *coileid*, stir, movement: Ir. and Gael. *goil*, to boil, to rage]: in *OE.*, noise and confusion, as the gurgling and gushing of water; disturbance; bustle; stir.

COIL, Field: a coil of wire surrounding the pole pieces of any electrical machine which magnetize the pole pieces when electric current flows through the wire. See Electrical machines.

COIL, Induction: a device for multiplying the voltage of any source of electric current, consisting of two separate coils of wire—one having a greatly larger number of turns or windings than the other—the two being wound around a bundle of iron wires. Current—either alternating or pulsating—is supplied to the coil of fewer turns, and from the coil of the larger number of turns, alternating current of much higher voltage may be taken. The current available is, however, less than that supplied to the first or 'primary' coil. See Electricity, Principles of.

COIL, MAGNETIZING: any coil of insulated wire traversed by electric current. See ELECTRICITY, PRINCIPLES OF.

COIMBATORE, *kō-ĭm-ba-tōr′* or *koym-ba-tōr′:* district in the province of Madras; lat. 10° 14′—12° 19′ n., and long. 76° 36′—78° 16′ e.; 7,842 sq. m. Lying n.e. of the state of Cochin, it is almost entirely beyond the W. Ghauts. Besides the capital (see COIMBATORE, city) there are in the dist. the towns of Anamalai, Aravakurichi, Palaghat, and Darrampoor. Pop. about 2,000,000.

COIMBATORE: city in the province of Madras, cap. of a district of the same name; near the left bank of the Noyel, a tributary of the Cauvery from the right; lat. 11° n., long. 77° 1′ e. It occupies the s. declivity of the Neilgherries, 1,483 ft. above the sea, near the point where those otherwise isolated mountains connect themselves with the W. Ghauts. Almost immediately, s. of the junction of the two chains, the remarkable depression of Palghatcheri traverses the W. Ghauts from e. to w., affording free passage for both the monsoons—the n.e. and the s.w.—in their respective seasons. Coimbatore, which contains about 2,000 houses, from its proximity to this great gorge, is admirably ventilated during most of the year. This peculiarity, backed by the elevation, tends to promote the salubrity of the place which, however, is seriously impaired by the brackish character of the wells. Coimbatore is on the line of railway from Madras to the w. coast. Pop. about 53,000.

COIMBRA, *kō-ēm′brâ*, Port. *kwĭng′brâ:* city of Portugal, cap. of the province of Beira, on the right bank of the river Mondego, here crossed by a stone bridge; 110 m. n.n.e. of Lisbon. Built round a conical hill, rising abruptly from the river, and surrounded by olive-gardens and orange-groves, its appearance from a distance is beautiful and picturesque. Interiorly, however, it is not so attractive, its streets being steep, narrow, and dirty. Great historical interest attaches to Coimbra, which appears to have been built originally by the Goths. From them it passed to the Moors, from whom it was finally conquered 1064, by Fernando the Great, aided by the gallant Cid. On the erection of Portugal into a kingdom, 1139, Coimbra was made the capital, and continued so about two centuries and a half. Of the public buildings, the most noteworthy are the cathedral, the churches of San Francisco and San Salvador, the convents of Santa Cruz and Santa Clara, and a fine aqueduct of 21 arches, dating from the 16th c. The Univ. of Coimbra, the only one in Portugal, was originally established 1290, but permanently transferred here 1537. It has 46 chairs, and about 1,000 students, many of the latter being Brazilians. Attached to the univ. are museums, an observatory, a botanical garden, and a library of 80,000 vols. Coimbra has manufactures of linen, woolen, earthenware, and combs. Pop. 13,200.

COIN, n. *koyn* [F. *coin*, a wedge, a stamp, a coin—from L. *cunĕŭs*, a wedge, the steel die with which money is stamped, probably from the stamping having once been effected by a wedge: Sp. *cuna*, a wedge: *cuno*, a die for coining: comp. Gael. *cuinn*, a coin]: a piece of gold, silver, or copper converted into money by being stamped with certain marks; money: V. to make money of metal; to make or invent, as *to coin* a word; to forge or fabricate. COIN'ING, imp.: N. the act of making money out of a metal; the act of one who coins; the process of making coins. COINED, pp. *koynd:* ADJ. stamped as coin. COIN'ER, n. one who; a maker of base money. COIN'AGE, n. *āj*, the money coined; the metallic currency; new production; invention. COIN-ASSORTER, a machine that separates different kinds of coins by size, or coins of the same kind by weight. COIN-COUNTER, an arrangement by which the process of hand counting, piece by piece, is dispensed with. A shovel or tray has shallow depressions of a given length, width, and depth to hold so many coins of a given kind. The coins are shovelled into the tray, which is then skilfully agitated until the coins have snugly occupied all the spaces. The remainder are brushed off, and the complete quota is thrown into a scale to verify the count by weighing. COINING-PRESS, or COINING APPARATUS, a powerful lever-screw press by which the planchet of metal is impressed with the design or legend.

COIN, *kō-ēn':* town of Andalusia, Spain, about 21 m. w. of Malaga. It is pleasantly situated on a declivity, with wide, clean streets, and environed with fine public walks and gardens. It has manufactures of linen and woolen, soap, paper, etc., and in the vicinity, marble, and jasper are obtained. Pop. 10,000.

COINAGE: is the art or process of converting metals into coin, i.e., stamped pieces of certified, fixed value for general monetary use. The antecedent processes of preparing metals for coinage are described under MINTS.

Since it is of prime importance that the coin shall contain the declared value in metal, the weight of the pieces, by which the value is determined, must receive constant consideration at every step of the process. The character or *fineness* of the metal is certified by *assay* prior to the delivery of the bars or *ingots* to the coiner; but the duty of determining the weight devolves upon that official.

The composition of coins is at present practically the same throughout the civilized world—*gold*, *silver* (both *alloyed* with copper), *nickel* (so-called, although the combination is generally one part nickel to three parts copper), and *bronze* (95 per cent. copper, 4 per cent. tin, 1 per cent. zinc). At various periods in the world's history platinum, iron, lead and brass have also been used; the Chinese *cash* of a kind of brass, has only recently been superseded in part.

Coins have been struck in square, hexagonal, octagonal and oval, as well as circular forms; the last-named is now

almost universally employed. For less civilized people base metal coins are perforated in order that they may be strung; notable examples are the Chinese cash and the bronze pieces provided for the natives of Congo.

At first coins were cast in molds; then struck from dies with a hammer; later hand presses were introduced; in our time the presses are operated by steam power. So far as the western world is concerned the Greeks are entitled to the credit of the invention of the art, at about 850 B. C.

Coinage being in effect a certification of the weight of a piece of metal for the convenience and benefit of all of the people, it has been regarded a prerogative of the sovereign or government almost from the date of its invention. During many centuries, however, it was customary to 'farm out' the privilege to individuals under more or less severe penal regulations; for a long period death was the punishment for false coining. Formerly the profit from coinage, known as *seigniorage*, was an important item which frequently seduced the coiners, and even sovereigns, to issue false coin; i.e., pieces containing less metal than the stamp indicated.

Since governments have almost universally assumed direct control of the function, most of the former evils have disappeared and the integrity of the coin is assured. Generally speaking the coinage of gold is free or subject to a merely nominal charge in all civilized countries; silver is however coined only on government account, the profit accruing to the fiscal departments; the same is true of coinage of base metal pieces. See MONEY.

In designing coins it is essential that the possibility of fraud be reduced to the minimum, both with respect to the impairment of the value of the pieces by abstracting a part, and counterfeiting by individuals. The excellence of the design of dies, the care in execution of the process at every stage, the adoption of special devices, and withal the expensiveness of the process, serve to prevent the fraudulent practices as much as penal statutes.

The coiner receives the ingots of metal, properly alloyed, in sizes suitable for the dimensions of the coins to be struck; accuracy in this particular is essential, since the diameter and thickness of the pieces to be produced, upon which the metallic content depends, must be exact. Moreover, as will be seen, if the ingots are not of suitable size the cost of the operations is increased.

The ingots are passed through a series of heavy rolls, where under enormous pressure they are reduced in thickness and increased in length, forming strips or *fillets;* these rolls are accurately graduated, each of the series producing exact results until the strips are of the required thickness. The process affects the malleability of the metal and it has been found necessary to *anneal* the strips, which is done by heating and plunging them while red-hot into cold water. Rolling also discloses occasional defects in the metal, due to the presence of foreign substances not discoverable by assays. Such metal is returned for refining unless it can be rendered available otherwise.

A sample disc is cut from each set of strips and weighed to test the correctness: if satisfactory the strips are passed to the cutters; if not, and the discrepancy is not remediable, by further rolling or otherwise, these strips are rejected and ultimately re-melted.

Discs or *planchets* are cut from the strips by means of a press which punches them out of exactly the required diameter. Once the strip is in the press the 'feed' is automatic; the capacity is in excess of one per second for larger discs and greater for the smallest. The portion of the metal remaining (*clippings*) is eventually returned to be re-melted. Since re-melting is an expense and causes a slight, though almost negligible, loss in metal, the aim is, naturally, to produce as many acceptable planchets from a given quantity of metal as possible; the regulation of the size of ingots and strips, and the adjustment of the punches, are therefore important.

The planchets are now individually tested as to weight; in very large part this is done by means of automatic weighing machines, but partially by hand, using the most accurate scales made. Whichever method is employed the result is to classify the pieces as of standard weight, heavy or light; in some establishments a further classification is made, rejecting such pieces as are absolutely unacceptable. The statutes do not require that each piece shall be of exact standard weight; the coiner is allowed a margin, known as *tolerance* in the United States, (remedy in England); this permitted variation must not exceed one-half of a grain in the $20 and $10 gold pieces, weighing respectively 516 and 258 grains, and one-fourth of a grain in the smaller pieces. In silver coin the tolerance is one and one-half grains. Hence planchets falling within the tolerance are accepted; but they are kept separately as classified and ultimately standard, heavy and light pieces are mingled in 'drafts' or lots of coin ready for public use; for here again an allowance is made; in gold, 1-100 of an ounce per $5,000 bag; and in silver 2–100 of an ounce per thousand pieces of the larger size and 1–1000 of an ounce per one thousand dimes. By mingling the several classes of pieces a very satisfactory average is obtained. Planchets distinctly heavy are, when practicable, carefully filed down to standard. Rejected planchets are of course returned with clippings to be re-melted.

The next step is the *milling*, raising the edge of the planchet slightly above the surface; one of the devices adopted to prevent tampering with the coins; this and the *reeding* (producing the serrated edge), have proved fairly efficient. Annealing is again resorted to, and the planchets are then cleaned by means of a bath of weak sulphuric acid, followed by one in hot water; and dried, either in ovens or by mechanical 'riddling' in sawdust. We have now a bright blank disc ready for stamping.

The modern coining press is a marvel of ingenuity, massively constructed, operating automatically, exerting a pressure of about 160 tons, yet working with such pre-

cision, that the beautiful product is turned out at the rate of 90 to 120 pieces per minute; the former for the larger, the latter for the smallest coins.

The planchets are 'fed' by hand into a tube, at the bottom of which are mechanical 'fingers' which seize the planchets successively by the peripheries, carry them forward to a grooved 'collar' into which they drop and simultaneously the upper and lower dies are brought together; the collar contracts producing the 'reeding' already referred to; the dies impress the design upon the discs, which are then released to drop into a receptacle below,—finished coins. The speed and precision of this powerful mechanism are a source of surprise and delight to all not familiar with the process.

In well-managed mints the finished coins are subjected to a final examination, in order to discover any possible defects not theretofore disclosed. Despite all the care exercised in melting and refining, assaying, rolling and annealing, it occasionally happens that through lack of homogeneity, the metal contained elements that rendered the coin imperfect, in a particular disclosed only when the pressure of coining was applied. Cracked pieces, lacking the proper 'ring' and hence unacceptable, are sometimes found when the presence of almost inappreciable quantities of arsenic or antimony causes brittleness of part of a strip.

Improvements in processes have overcome many of the defects and reduced the expense of coinage. Thus, from the practical point of view, the number of planchets cut from a given weight of ingots has increased; the number of defective pieces has diminished.

A thorough system of accountability over the coiner prevails in all civilized countries. Not only is the penalty for issuing coins materially varying from the standard severe; but a supervision exists which may be briefly described as follows: from every day's delivery of coin certain mint officials select arbitrarily a number of pieces of the output, which are placed in a sealed receptacle known as the *pyx;* this is annually opened by a commission composed of other officials of the government and eminent citizens, which tests the pieces by weighing, assaying, etc., making a full report thereof to the government.

Greater care is, in the nature of things, exercised over the production of larger coins than over that of the small ones; and even less is observed respecting nickel and bronze pieces. Indeed the planchets for the latter are frequently prepared by private establishments; and one such concern abroad manufactures for certain countries having no mints both base-metal and silver coins.

The recorded value of gold and silver coined is in excess of $30,000,000,000; a very considerable part of this sum is due to recoinage; each nation converting the pieces of others into coins of its own design and weight. The amount of coin extant in the world is estimated at about $10,000,000,000, of which nearly two-thirds is gold. In

addition there is probably $500,000,000, nominal value, of base-metal coin. During the past decade the world's coinage, including recoinage, has averaged about $300,000,000 annually; of silver about $170,000,000 annually has been turned out.

COINCIDE, v. *kō'ĭn-sīd'* [F. *coincider*—from L. *coincĭdĕrĕ*—from L. *co, incidĕrĕ*, to fall into—from *in*, in or on; *cădo*, I fall]: to fall or meet in the same point; to concur or agree. Co'inci'ding, imp. Co'inci'ded, pp. Coin'cident, a. *-sĭ-dĕnt*, falling on or meeting at the same point; concurrent; agreeable to. Coin'cidence, n. *-sĭ-dĕns*, the falling on or meeting of two or more lines, surfaces, or bodies at the same point; concurrence; agreement; a happening at the same time. Coin'cidently, ad. *-lĭ*.

COIN—COINING: see Money: Mint: Numismatics: Currency: Coinage.

COINING, in Law: privilege restricted to the government. The privilege of coining money being an exclusive prerogative of the crown, the crime of counterfeiting the king's money, as it was called, was declared to be treason, both by the common law of England and by many statutes.

The whole of the legislation on this subject was at length repealed, and a general act passed for the whole kingdom (2 Will. IV. c. 34). This statute forbids—under severe penalties of either transportation or imprisonment—imitating, altering, impairing, or diminishing current coin of the realm; buying, selling, receiving, or paying counterfeit coin, or importing it, with knowledge of its character; uttering base coin; possessing false money with intent to utter it, or the instruments for its fabrication.

In order to bring these offenses within the limits of the statute, it is not necessary that the resemblance of the false to the true coin shall be very perfect; but if it be not such as to deceive a person of ordinary observation, the attempt to bring it into circulation is fraud, and not uttering.

COIR, n. *koyr* [Tamil, *cuyer*, a rope of any kind]: fibre of the husk of the cocoa nut, much used for making ropes, mats, etc. The husks are steeped in water, in pits, for six months, or a year, and then beaten with a stick till the fibre readily separates. Coir is now well known as one of the best materials for cables on account of its lightness, elasticity and strength. Coir ropes are produced in great quantity in the Laccadive Islands. They are made entirely by the hand—chiefly by women—without the aid of machinery of any kind. The manufacture of cocoa-nut mats from imported husks, is one of the branches of industry in Britain in which children are employed in the industrial or ragged schools, and criminals in prisons.

COIRE: see Chur.

COIT. *koyt:* see Quoit.

COIT, *koyt*, James Milnor, American educator: b. Harrisburg, Pa., 1845, Jan. 31. He graduated at Hobart

College 1865, and was manager of the Cleveland Tube Works 1873–5. In 1876 he became master in natural sciences at St. Paul's School, Concord, N. H., and is now acting head master there. He is a member of the leading scientific societies of the country, and has published: *Manual of Chemical Arthmetic* (1886); *Treatise on the X-Rays and Their Relation to the Medical and Surgical Sciences* (1897); *Liquid Air* (1899).

COIT, Stanton, American lecturer on ethics: b. Columbus, Ohio, 1857, Aug. 11. He was educated at Amherst and Columbia colleges, and Berlin University, and has for many years lived and lectured in London, England, where he is chairman of the West London Ethical Society. He has published in German and Dutch, *The Ethical Movement in Religion;* in English, German, and Dutch, *Neighborhood Guilds.*

COIT, Thomas Winthrop, d.d., ll.d.; b. New London, Conn., 1803, June 28; d. 1885, June 21. He graduated at Yale 1821, entered the Episcopal ministry, and was rector at Salem, Mass., 1827–29, and at Cambridge, 1829–34; president of Transylvania Univ., Lexington, Ky., 1834–39; rector at New Rochelle, N. Y., 1839–48, and of St. Paul's, Troy, 1848–72. From 1854 he was also lecturer on ecclesiastical history at Berkeley Divinity School, Middletown, Conn., and from 1872 was professor of that dept. He was counted one of the leading scholars and writers of his church. Among his publications were a *Theological Commonplace Book,* 1832, *Remarks on Norton's Statement of Reasons,* 1833, two editions of the Bible, 1834–37, *Puritanism,* 1844, *Early History of Christianity in England,* 1859, and *Puritanism in New England and the Episcopal Church,* 1885. He died at Middletown, Connecticut.

COITION, n. *kō-ĭsh′ŭn* [L. *coĭtĭōnem,* a coming or meeting together—from *con, itum,* to go]: a going or coming together; sexual intercourse.

COIX: see Job's Tears.

COJUTEPEC, *kō-chô-ta-păk′:* town of San Salvador, Central America; 15 m. e. of the city of San Salvador destroyed by earthquake 1854; and it was the seat of government from that year until 1858. Pop. 4,154.

At the distance of a few leagues, a lake of the same name measures 12 m. in length by 5 m. in average breadth; and in windy weather it assumes a green hue, often casting on its shores vast quantities of dead fish.

COKE, n. *kōk* [OE. *colke,* the core of an apple, the remnant of a thing when the virtue is taken out of it: Gael. *caoch,* empty]: coal charred or half burned in kilns or ovens as in the manufacture of gas: see Charcoal: V. to char or half burn. Co′king, imp. Coked, pp. *kōkt.* Coke oven, a building of brick or clay in which coals are charred or made into coke.

COKE: the coherent cellular mass left after the expul-

sion of the volatile products of coal by heating in an oven. It is an aggregation of the particles of the fixed carbon in the coal.

Manufacture of Coke.—In general principles, coke-making differs little from charcoal-making, except that the carbon molecules are broken up more completely, requiring a higher heat. In coking, the organic compounds are destroyed, and the decomposition products form new compounds, stable at the higher temperatures. Gas begins to come off when the coal charged in the oven reaches a temperature of 100° C., and is given off till a dull red heat is attained. Tarry products are given off up to 600° C. The highest temperature reached is about 1,400° C., falling to 800° C. when the charge is drawn. The time required for coking is from 18 to 72 hours, varying with the coal and type of oven. The products, besides coke, are (1) illuminating gas, vapor, and diluents; (2) ammonia liquor; (3) tar, containing hydrocarbons of the fatty, or paraffine, and of the aromatic or benzene series, neutral compounds, acids, and bases; and (4) asphaltum.

Coal is made into coke in ovens of various types. The oven most used for making foundry and blast-furnace coke in the United States, and England is the beehive oven, a development of the dirt-covered pile of wood used in charcoal-burning. The beehive oven has been used in Connellsville, Pa., the coke-producing centre of this country, for nearly 70 years. It is a dome-shaped chamber of bricks, 11 to 12 feet in diameter and 5½ to 6 feet high. The ovens are arranged in rows and charged at the top from cars or larries, and drawn through doors at the bottom. The average charge is about 100 bushels of coal, and the average yield about 120 to 125 bushels of coke By weight the average yield of coke is from 63 to 66 per cent. The time required in the beehive oven is 48 hours, though coke has been made in less time. The beehive ovens erected in the last few years are of larger size than the dimensions given.

The Belgian oven is a horizontal chamber 21 feet long, 8 feet wide, and 2½ feet deep. The average charge is 9 gross tons, yielding 6.3 tons of coke or 67 per cent.

The Coppée oven, a development of the Belgian oven, much used abroad, is 30 feet long, 6½ feet high, arched at the top, 21 inches wide in front, and 26 inches in the rear. It is charged from the top by four openings. The charge is from three to five tons, and the time required is about 24 hours. In the beehive oven the heat of the walls from the previous charge starts combustion, and air is admitted through flues which are closed when burning has gone far enough. The escaping gases and other products burn and are lost. In the Coppée oven vertical flues in the side walls communicate with the interior. The volatile products of distillation burning in these flues give heat for combustion. No by-products are saved, but the oven will choke lean and non-coking coals and less fixed carbon of the coal is burnt than in the beehive.

The Otto-Hoffman oven is a development of the Coppée, with a Siemens regenerator, by which the air supplied to the furnace is heated to 1,000° C., while the products of combustion, after passing through the regenerator, are cooled, and the tar, ammonia liquor, etc., are recovered. In the Semet-Solvay by-product oven the coking chamber is 30 feet long, 16 to 17 inches wide, and 5 feet 6 inches high. The flues in which the products of distillation burn are horizontal and thin. The usual time of coking is 18 to 22 hours.

The advantages of the Coppée over the beehive oven are quicker work, higher yield of coke, and the ability to coke lean coals. In the Semet-Solvay and Otto-Hoffman ovens the by-products recovered are of value, so much so that the beehive oven is abandoned on the Continent. American and English ironmasters have clung to the beehive because of having rich or 'fatty' coals, and because of the silvery lustre of the coke produced, though by-product oven coke is of just as good quality. In 1891 there were 12 Otto-Hoffman and 8 Semet-Solvay plants in the United States, and their output of coke was an insignificant percentage of the total. In 1900 fully 42 per cent of the coke made in England was from beehive ovens.

Objects of Coking.—Coke, though used as a domestic fuel and for locomotives, is used chiefly in metallurgical work. In the blast-furnace it reduces ores by combining with the oxygen in them; in the cupola furnace it is used simply to produce a high heat; hence there is a difference between blast-furnace and foundry coke, the latter being the purer. The objects of coking are: (1) to get a fuel rich in carbon by expelling volatile constituents; (2) to get a fuel giving no gas or smoke which would interfere with metallurgical operations; (3) to get an infusible fuel, since a fuel which softens and swells on heating prevents the charge in a blast-furnace from sinking evenly; (4) to reduce the sulphur present in coal, in organic compounds, or combined with iron. Coke has almost replaced charcoal and anthracite coal in blast-furnace work. In 1872 the blast-furnaces of this country used 500,000 tons of wood charcoal, 947,,000 tons of coke, and 1,407,000 tons of anthracite; in 1892, 537,000 tons of charcoal, 7,154,000 tons of coke, and 1,798,000 tons of anthracite and coke. In 1902 the coke consumption reached 12,750,000 tons, while the charcoal and anthracite consumption was probably less than in 1872.

Coking and Non-Coking Coals.—A coking, or caking coal, is one which softens and becomes pasty or fuses on heating, while bubbles of gas escape; but there are all gradations between coking and non-coking coals, and why one cokes and another does not is undetermined. It may be due to differences in the carbon molecules. Coking seems to bear some relation to the percentages of combined hydrogen and oxygen, and of free hydrogen in the coal, and to the specific gravity. A coking coal may give from 50 to 87 per cent. of coke, much depending on the method of

coking. Coking coals rich in carbon and poor in gas give the most coke. Hydrogen lowers the yield by forming volatile compounds with carbon, the one having the lowest carbon percentage being methane, CH_4. A large percentage of oxygen causes losses by making a rapid formation of gas and smoke on heating, while water an ' ash in the coal render necessary more heat, thus burning up some of the carbon. Silica, clay, and iron in the coal hinder coking, but lime, by increasing the fusibility, facilitates it. Coke can be made from non-coking coals by mixing them with coals which coke, or by coking in special ovens.

Good coke has a metallic ring, is of a silvery lustre or has a light gray color with a dark gray or black powder, though coke made in by-product ovens is dark and of excellent quality. The color is influenced by several things. For cupola work a coke should be below 1.25 in sulphur. Good coke should be hard enough to bear the burden in a blast-furnace without crushing.

Coke Production.—The United States in 1906 produced 28,777,794 short tons of coke, not including any of the coke made in gas manufacture; Great Britain, in 1900, produced 28,500,000 tons.

COKE, *kûk* or *kōk*, Sir EDWARD: Eng. lawyer and judge; b. Mileham, Norfolk, 1551 (or 2), Feb. 1; d. 1633, Sep. 3. Educated at the free grammar-school of Norwich, and at Trinity College, Cambridge, he passed then to Clifford's Inn, and subsequently to the Inner Temple, to study law, and was called to the bar 1578, April. His great ability, legal learning, and tact in the conduct of his cases, secured him an immense practice on the very threshold of his career. In 1586, he was appointed recorder of Norwich; in 1592, recorder of London, which position he resigned the same year for the solicitor-generalship. In the following year, he was elected member of parliament for the county of Norfolk, and was chosen speaker of the house of commons. In 1594, he was made attorney-gen., and held that office till 1606, when he was appointed chief-justice of the common pleas. Upright and independent, with high estimate of the dignity and importance of his office, he did not, in an age of judicial sycophancy, hesitate to oppose any illegal encroachment by royalty. The court thought to win him over by making him, 1613, chief-justice of the King's bench But here he proved equally independent, maintaining among other things, that the king had no power to stay the proceedings in a court of justice—and this even when his craven-hearted colleagues begged the royal pedant's pardon on their knees for ever having entertained such an opinion. This was too much: Coke, in a few months 1616, Nov., was relieved from his chief-justiceship; but in no long time after, the royal favor was in some measure again extended to him. His support of liberal measures in parliament, however, soon brought him into trouble with the court-party, and in 1621–2, he suffered seven months' imprisonment in the tower. In the third parliament of Charles I. (1628), Coke was active in framing the

celebrated bill of rights, and it was in great measure owing to his advocacy that the lords were induced to agree to it. He is now best known for his law treatise, *Coke upon Littleton, or the First Institute*, a work which is still the standard on questions of constitutional and municipal law in England. His other works are the *Second, Third*, and *Fourth Institutes*. *The Complete Copyholder*, and *Reading on Fines;* and his collection of law reports, which made an epoch in the history of law on their appearance, are still of great value for the profession in England and the United States.

COKE, THOMAS, D.D., LL.D.: first Methodist bishop; b. Brecon, S. Wales, 1747, Sep. 9; d. 1814, May 2. He was educated at Jesus College, Oxford, became mayor of Brecon 1772, was ordained, and was for a short time curate of Petherton, but soon joined Wesley, made himself useful, was appointed supt. of the London district 1780, and president of the Irish Conference 1782. He was sent, 1784, to exercise similar functions in America; the precise nature of his commission is a matter of dispute, but Wesley, being a presbyter of the English Church, and holding to some extent the views of that body, knew that he could not make a bishop in the then received sense of that word. Coke thought differently, and proceeded, 1784, Dec. 27, to ordain Asbury a bishop and joint superintendent of the Methodists in America. After visiting the different conferences he sailed for England, 1785, June, and devoted himself to the work of an itinerant missionary, having no fixed residence, but travelling about the English-speaking world. His first mission was established in the W. Indies 1786, and revisited 1788, '90, and '92. He attempted to start others in France and Africa, but was more successful at home. He made nine journeys to America, the last 1803; on one of these, 1797, he was abused and plundered by a privateer. On Wesley's death, 1791, he became sec. of the English Conference, and joined Moore and Whitehead in preparing the *Life of Wesley*, 1792. He also undertook a commentary, which appeared in 6 vols. 1807, and a *History of the West Indies*, 3 vols. 1808–11, besides several other books. His talent, however, was rather for working than for writing. He founded a mission at Gibraltar 1803, had one begun at Sierra Leone 1811, and gave £6,000 for another at Ceylon 1813. Sailing with others Dec. 30 for this point, he died at sea on the way thither. His *Memoir* was written by S. Drew 1853.

COKES., n. *kōks:* in *OE.*, an empty-headed person; a fool: see COAX.

COL, *kŏl* [Fr. *neck*], in Geography: depression or pass in a mountain-range. In those parts of the Alps where the French language prevails, the passes are usually named cols—as the Col de Balme, the Col du Géant, etc.

COLANDER, n. *kŭl'ăn-dėr* [Sp. *colado*, a lye of ashes for bucking clothes; *colăděro*, a strainer for the lye: L. *colans*, straining or filtering]: a vessel of tin or earthenware with a perforated bottom; a sieve: also spelled CULLENDER.

COLA NUT, or KOLA NUT, *kō'la:* seed—not properly a nut—of *Cola acuminata*, or *Sterculia acuminata*, a tree of the nat. ord. *Sterculiaceæ*, native of the tropical parts of the w. coast of Africa, and cultivated in other tropical countries. There are two varieties of the tree—one with broad, the other with narrow, leaves. The natives of Guinea value the seeds very highly, believing that to take a portion of one of them before their meals, improves the flavor of whatever they may eat or drink. When sucked or chewed, cola nuts are generally asserted to render the flavor even of very putrid water agreeable (but see footnote under TEA). They are said to possess properties analogous to Peruvian bark. They are of the size of a pigeon's egg, of a brownish color, and bitter taste. They are mentioned by almost all travellers in w. Africa.

COL'AR'CO, in Music: with the bow, in contra-distinction to *pizzicato*.

COLARIN, n. *kŏl'ar-ĭn* [It. *collarino*]: the little frieze of the capital of the Tuscan and Doric column placed between the astragal and the annulets: see NECK.

COLATION, n. *kō-lā'shŭn* [L. *colatus*, pp. of *colo*, I strain, filter, or clarify]: the act or process of straining or filtering; colature.

COLBERG, or KOLBERG, *kōl'bĕrĉh:* fortified seaport of Prussia, province of Pomerania, on the Persante, near its mouth in the Baltic; lat. 54° 9′ n., long. 15° 34′ e. It stands on a hill, surrounded with swamps which can be readily laid under water, and is notable for the protracted sieges which it has undergone. In 1102, Duke Boleslaus of Poland besieged it in vain. It endured long sieges in the thirty years' war, and in the seven years' war, and again 1807, when it was most gallantly defended against the French. Colberg has manufactures of woolen, salt, and spirits; and salmon and lamprey fisheries. Pop. about 17,000.

COLBERT, *kōl-bär'*, JEAN BAPTISTE: 1619–1683, Sep. 6; b. Rheims, France: minister of finance to Louis XIV. He served his apprenticeship in a woolen-draper's shop; afterward went to Paris, where his talents introduced him to Mazarin, who soon employed him in most important affairs of state. On his death-bed Mazarin warmly recommended Colbert to the king, who, 1661, appointed him controller gen. of finances. Colbert, who found the finances in a ruinous condition, immediately began his reforms. Fouquet, the superintendent under Mazarin, was found guilty of impoverishing the state by his maladministration, and imprisoned for life, Colbert next instituted a council of finance and a chamber of justice, to call to account the farmers of the state-revenues, who were forced to yield up all the resources of the crown of which they had fraudulently possessed themselves. The debts of the state Colbert also reduced by arbitrary composition. So complete and thorough was the change which Colbert effected that in 20 years the annual revenue had risen to 116 million livres, of which 23 were spent in collection and administra-

tion; whereas, when the management of the finances was intrusted to him, the revenue amounted only to 84 million livres, and 52 millions were absorbed in its collection. Colbert did not rest satisfied with being a monetary reformer, but in various ways developed the industrial activity of the nation by state support. Commerce was extended, roads and canals—including that of Languedoc—were made. He organized anew the colonies in Canada, Martinique, and St. Domingo, and founded others at Cayenne and Madagascar. Made minister of marine 1669, he found France with a few old rotten ships; three years later she had a fleet of 60 ships of the line, and 40 frigates. Colbert improved the civil code, introduced a marine code of laws, as well as the so-called *Code Noir* for the colonies; and statistical tables of the population were first made out by his orders. While attending to material interests he did not neglect the arts and sciences; all men of learning and genius found in Colbert a generous patron. The academies of inscriptions, science, and architecture were founded by him. In short Colbert was the patron of industry, commerce, art, science, and literature—the founder of a new epoch in France. Notwithstanding the ingenuity of Colbert the unbounded extravagance of his master led him to raise money in ways objectionable to his reason, and to maintain war taxes in time of peace. He died, bitterly disappointed, because his great services were but ill appreciated by the king. The people, enraged at the oppressive taxes, would have torn Colbert's dead body in pieces, but for the intervention of the military and his burial by night. Because he had brains without high birth, he was vexed and persecuted, both in private and public life, by those who, having birth, lacked brains.

COLBERTINE, n. *kŏl'bėr-tĭn* [from M. *Colbert*, superintendent of the French royal lace manufactories, 17th c.]: a kind of lace.

COLBURN, *kōl'bėrn*, Warren: 1793, Mar. 1—1833, Sep. 15; b. Dedham, Mass.: mathematician. His parents were poor and migratory; as a boy he worked in various factories, and learned the machinist's trade. He graduated at Harvard 1820, and published 1821 his *First Lessons in intellectual Arithmetic*, which had an enormous sale at home, and was translated into most languages of Europe and several of Asia. A *Sequel* followed 1824, and an *Algebra* 1828. After teaching nearly 3 yrs., he became supt. of the Boston Manufacturing Co., at Waltham 1823, Apr., and of the Merrimack Co. at Lowell, 1824, Aug. Here he introduced some valuable improvements in machinery, acted as supt. of schools, and from 1825 lectured on nat. hist., commerce, physics, astronomy, etc. He became a fellow of the Amer. Acad. of Arts and Sciences 1827, and was for some years an examiner in math. at Harvard.

COLBURN, Zerah: 1804, Sep.1—1840, Mar. 2; b. Cabot, Vt.: lightning calculator. His strange mathemat-

ical power developed at the age of six, and his father, rejecting the offer of Dr. Wheelock, pres of Dartmouth, to educate the boy, put him on exhibition as a prodigy. In Boston, 1811, he astonished the learned as well as the public, and thence was carried to the South, and 1812 to England. In Paris he gave instantly the factors of 4,294,967,297 (announced as a prime number), the cube root of 268,336,125, etc., and studied for a short time in the *Lycée Napoléon.* The Earl of Bristol placed him in Westminster School 1816-19, but his father cut short his education, and made him prepare for the stage; this failed, and he engaged in teaching. His natural protector and evil genius died 1824, and he returned to America: by this time his extraordinary talent had departed, and left him in every respect an ordinary man. He continued his studies at Burlington College, Vt., joined the Methodists 1825, was an itinerant preacher for nine years, published his *Memoirs* (Springfield, 1833), became prof. of languages in Norwich, Vt., 1835, and died there in his 36th year. His case compares curiously with that of another prodigy, Jedidiah Buxton (q.v.), who remained illiterate, kept his gift, and lived to 70.—Colburn's nephew, Zerah Colburn (1832–70), an eminent authority on engineering, became insane and died by his own hand.

COLBY, Frank Moore, American writer: b. Washington, D. C., 1865, Feb. 10. He graduated at Columbia University 1888, and took graduate studies in political science there. He taught history at Amherst College 1890–1; was lecturer in history at Columbia 1891–5; professor of economics in New York University 1895–1900, when he became an editorial writer on the *Commercial Advertiser.* He has done a large amount of editorial work on Johnson's *Cyclopædia;* the *International Cyclopædia,* and *International Year Book,* editing the latter since its foundation in 1898, and was the managing editor of the *New International Cyclopædia* (1902–3).

COLBY UNIVERSITY, *kōl'bĭ:* at Waterville, Me.; organized under the supervision of the Baptists and incorporated by the Mass. legislature 1813 as the Maine Literary and Theol. Institution; first located near Bangor; transferred to Waterville 1818, and chartered by the Maine legislature 1820 as Waterville College. It was conducted with signal success under this name. In 1867 Gardner Colby, a wealthy merchant of Boston, gave it an endowment of $230,000, to which he subsequently added a gift of $120,000. In grateful recognition of this munificence, the legislature changed the name to Colby University. During the fiscal year 1885–6 some modifications in the courses of study were made, a dept. of mineralogy and geology was fitted up, a new professorship established, and a building to be used as a ladies' hall was purchased. A considerable increase in the art collection and the library was reported. In 1907, the univ. had 17 professors and instructors; 240 students; 43,000 vols. in the library; library and apparatus valued at $130,000; grounds and

buildings and other property valued at $650,000; productive funds $405,830.

COLCHAGUA, *kōl-châ'gwâ;* province of Chili, stretching from the Andes to the Pacific, bounded n. by Santiago and s. by Curico; 3,516 sq. m. It has three rivers, a fertile soil, and the best climate in Chili, but no considerable port or harbor. Gold and copper are found in the mountains. The chief town is San Fernando, abt. 50 miles from the sea and 100 s. of Santiago. Pop. about 150,000.

COLCHESTER, *kōl'chĕs-tėr:* parliamentary and municipal burgh and river port, in the n.e. of Essex, England, on the s. bank of the Colne, 12 m. from the sea, 51 m. n.e. of London. It stands on the sides and top of an eminence, and is well built. It has a quay for vessels of 150 tons at the suburb called Hythe. Its former manufactures of baize and silk have both declined. The important oyster fishery has suffered of late. Colchester returns one member to parliament. The most important modern structure is the town hall, completed in 1902. Colchester is the British *Camulodunum* and the Roman *Colonia.* The town-walls, castle, and many churches and other buildings, consist of Roman brick. Great quantities of Roman remains have been found here. bushels of coins of many emperors, vases, urns, lamps, rings, bracelets, pavements, pateræ. Colchester was ravaged by the plague in 1348, 1360, and 1665. The ruins of the castle, built of cementstone and Roman brick soon after the conquest, have walls 11 to 30 ft. thick. There are the ruins of an abbey, founded by Eudo the 'Dapifer,' and the remains of a priory. Pop. about 35,000.

COLCHESTER, Charles Abbot, Lord: 1757, Oct.—1829, May 29; b. Abingdon, Berkshire; legal and administrative reformer. He was educated at Westminster School and Christ's Church College, Oxford, and afterward studied for the bar. Returned to parliament 1795, he in the very next year began his reforming work. He mainly procured the establishment of the royal record commission, and for many years superintended it. He obtained an act for taking the census of the population, the first enumeration under public authority in modern times. On his suggestion the private bill office, which has done much to facilitate parliamentary business, was established. In 1802, he was elected speaker, of the house of commons, which office he filled till 1817, May, when ill-health compelled him to resign. He was then elevated to the peerage as Baron Colchester, with a pension of £4,000 a year.

COLCHICUM, *an* n. *kŏl'kĭ-kŭm* [L.]: genus of plants of the nat. ord. *Liliaceæ.* The species, which are few in number, are stemless, with flowers half subterranean like the crocus, the limb of the perianth and part of tube only rising above ground. The flowers much resemble crocus-flowers, but are readily distinguished by having six instead of three stamens, and three styles instead of one. The seed-vessel does not remain to ripen underground, as in

the crocus, but after the flowering is over, rises in the form of three little follicles slightly adhering to each other, on a lengthened stalk. *Colchicum autumnale*, the MEADOW SAFFRON, sometimes incorrectly named *Autumn Crocus*, is plentiful in meadows and pastures in some parts of the continent of Europe. The flowers are pale purple; they appear in autumn, unaccompanied by any leaves; the leaves, which are large and broadly lanceolate, appear in spring, when the stalk which bears the ripening fruit arises among them. The whole plant is very acrid and poisonous, chiefly owing to the presence of an alkaloid called *Colchicine* or *Colchicia*. Cattle are sometimes injured by it in pastures where it abounds. It is not difficult to extirpate, the repeated pulling of it by the hand as it appears above ground being sufficient; the roots soon become exhausted, and die. It is a valuable medicinal plant, and is much administered, in small doses, to allay the pain of gout and rheumatism. Repeated doses produce vomiting, purging, increase of the urinary secretion, and profuse perspiration. Colchicum is generally supposed to have been the basis of the *Eau medicinale*, long a celebrated empiric remedy for gout. The parts chiefly used for medicinal purposes are the corm (popularly called the root) and the seeds. The seeds are round, brown, rather larger than mustard-seed, and fatal accidents have occurred from their poisonous nature.—Other species of Colchicum appear to possess similar properties. The *hermodactyls* of the druggists' shops, which for many centuries have had extensive celebrity for soothing pains in the joints, and are brought from the Levant, are believed to be the corms either of *Colchicum varicgatum* or *Colchicum bulbocodioides;* the former of which is probably the Colchicum of the ancients—*Colchicum autumnale* is not unfrequent in flower-borders, particularly a variety with double flowers.

COLCHIS, *kŏl'kĭs:* province of anc. Asia, on the east coast of the Pontus Euxinus or Black Sea, n. of Armenia, and s. of the Caucasus. It now forms the Russian province of Imerethia, with the districts of Mingrelia and Guria. It was celebrated in the very earliest times as the native country of Medea (q.v.), and the goal of the Argonauts (q.v.), and was afterward better known to the Greeks as the seat of some colonies of the Milesians. It was noted for its wine and fruits. The Colchians, according to Herodotus, were of Egyptian descent, being relics of the army of Sesostris, which he attempts to prove by various arguments. In the time of this historian they were subject to Persia; subsequently, they threw off their allegiance and were ruled by kings of their own; the country then came under the dominion of Mithridates, king of Pontus; afterward, there were princes of Colchis dependent on the Romans. The principal town was Dioscurias (called under the Romans Sebastopolis), and now Isgaur; the principal river the Phasis.

COLCOTHAR, n. *kŏl'kŏ-thĕr* [new L.]: the brown-red

peroxide of iron, produced by calcining sulphate of iron, used for polishing glass, etc.

COLD, a. *kōld* [Goth. *kalds*, cold: Icel. *kaldr*, cold; *kala*, to blow cold: Ger. *kalt*, cold]: not warm or hot; frigid; indifferent; without zeal; without affection; wanting in animation; not cordial: N. the sensation or feeling produced by the want or loss of heat, and the cause of that sensation; a disease occasioned by cold (see CATARRH); a shivering or chilliness. COLDED, pp. a. *kōld'ĕd*, affected with cold. COLD'ISH, a. *-ĭsh*, somewhat cold. COLD'LY, ad. *-lĭ*, with indifference; not warmly. COLD'NESS, n. want of heat; the power to produce the sensation of cold; frigidity; want of zeal; want of kindness; want of passion. COLD-SHOULDER, neglect; an assumed distant manner to a former friend. COLD-BLOODED, a. without feeling or concern; without provocation; in *zool.*, applied to all animals which have not warm blood, that is, those below the class of birds. COLD-CHISEL, a chisel used for cutting metals, driven by blows of a hammer. COLD-FINCH, the Wagtail (q.v.). COLD-SHUT, a term meaning that a link is closed while cold without welding. COLD-SORE, *kōld'sōr*, herpetic eruption, on the lips or about the nostrils, often accompanying a cold in the head or catarrhal inflammation of the nasal passages and pharynx. IN COLD BLOOD, deliberately; without excitement or passion—usually in a bad sense. COLD-HEARTED, a. wanting feeling or passion. COLD-PRESSED OIL, a superior oil, as castor-oil, obtained from the pressure of the seeds or fruits, and not from boiling them. COLD-STEEL, the sword or bayonet as the arbiter of a quarrel. COLD WITHOUT, in *slang*, spirits and cold water without sugar.

COLD: term signifying a relative lack of sensible heat. There are, therefore, no determinate boundaries between cold and heat, and it is a mere arbitrary distinction to call the degrees of the thermometer below the freezing-point, degrees of cold. When the atmosphere, or any substance which comes in contact with our body, contains less heat than the body, it absorbs heat from the body, and we call it cold: see HEAT.

There is a noticeable physiological action of Cold on the animal organism. All animals (the warm-blooded animals to the greatest extent) have a certain power of maintaining the heat of the body, in defiance of external cold (see ANIMAL HEAT). This power is due mainly to a process analogous to combustion, in which carbon and hydrogen taken into the system in food are made to unite with oxygen derived from the air by respiration. If the combustible materials are not duly furnished, or if the supply of oxygen be deficient (as in various diseased conditions), there must be a depression of temperature. Now, if the temperature of a bird or mammal (except in the case of hibernating animals) be lowered about 30° below its normal standard (which in birds ranges from 108° to 112°, and in mammals from 98° to 102°), the death of the animal is the result. The symptoms indicating that an animal or a

man is suffering from a depression of the temperature of the body, are, retardation of the circulation of the blood, causing lividity of the skin, which is followed by pallor, in consequence of the blood being almost entirely driven from the surface, through the contraction of the vessels; a peculiar torpor of the muscular and nervous systems at the same time manifests itself in an indisposition to make any effort or exertion, and in intense sleepiness. The respiratory movements become slower, for physiological reasons (for which, see RESPIRATION), and the loss of heat goes on, therefore, with increasing rapidity, till the fatal limit is reached, and death supervenes.

In hibernating animals (the marmot, dormouse, bat, etc.) the power of generating heat within their own bodies is very slight, their temperature following that of the external air, so that it may be brought down nearly to the freezing-point. At this low temperature the vital actions are scarcely perceptible, but when the temperature is again raised, the vital activity returns. The respirations (in marmots) fall from 500 to 14 in the hour, and are performed without any apparent movement of the walls of the chest; the pulse sinks from 150 to 15 beats in the minute; and the animals can with difficulty be aroused from their torpor. For additional matter bearing upon this subject, see HIBERNATION: STARVATION: DORMANT VITALITY: TEMPERATURE OF THE BODY.

Cold is one of the most powerful depressing agents, and is a fruitful cause of disease, and even of death. Thus it is observed, that whenever the temperature of the atmosphere is suddenly reduced, and particularly when it is reduced below the freezing point, a considerable addition takes place to the mortality of the country at large. The effects of Cold are, in ordinary circumstances, most apparent among the aged and the very young, and among those suffering from chronic disease; but when a very low temperature is long continued, even the healthy are sure to suffer, when impoverished so as not to have sufficient means of external warmth in their homes. The most direct effects of Cold are in the production of what is commonly called frost-bite. The part so affected is deprived of circulation, and does not bleed on being wounded; it is marble-white or livid, and has lost all sensibility; and if the exposure is continued, or reaction is brought about too rapidly, it is apt to pass into gangrene. The extremities, especially the fingers and toes, and the tip of the nose, are the parts most liable to frost-bite. The remedy is an exceedingly gradual restoration of the temperature with gentle friction. In Russia, friction with snow is commonly resorted to, so as to secure against too rapid reaction. The effects of Cold upon the general system are described by arctic voyagers, and a medical detail of them may be found in Baron Larrey's interesting account of Napoleon's disastrous campaign in Russia. The circulation is much depressed; diarrhea and rheumatic pains are frequent; in the end the general sensibility becomes impaired, and an

irresistible tendency to lie down is experienced, with excessive drowsiness. If this be not resisted, death is certain. For the disease commonly termed 'a cold' see CATARRH.

COLD CREAM: preparation of fatty substances, used as a mild and cooling dressing for the skin. It may be prepared by heating gently four parts of olive oil, and one part of white wax, till a uniform liquid mass is obtained, when a little color and scent may be added; the mixture is then allowed to cool, but must be stirred the whole time, so as to prevent the concretion and consequent separation of the wax. Another variety is prepared with the addition of hog's lard, but the latter sometimes contains common salt, and is liable to become more or less rancid. Cold cream softens the skin, and tends to promote the healing of wounds and of chapped hands.

COL DE LA SEIGNE, *kol dėh lâ sĕn:* a pass in the Alps leading from Savoy into the Val d'Aosta in Piedmont. It is 8,422 ft. high, and seven m. w.s.w. of Mont Blanc. The term *Col* [Lat. *collum,* neck] is applied to several other Alpine passes.

COLDEN, *kōl'dėn,* CADWALLADER: 1688, Feb. 17–1776, Sep. 28; b. Dunse, Scotland: scientist and lieut.-gov. of N. Y. He graduated at the Univ. of Edinburgh 1705, emigrated 1708, practiced as a physician at Philadelphia and was founder of the Amer. Philos. Soc. Visiting London 1715, he won repute by a paper on *Animal Secretions,* read before the Royal Soc. Invited to N. Y. by Gov. Hunter 1718, he became its first surveyor-gen. and master in chancery 1719, and a member of the council 1720. He lived for some time on the Hudson near Newburg, exposed to Indian attacks, but mingling scientific studies with his official duties. He was lieutenant governor from 1761, and often acted as gov. in cases of vacancy or absence. On one of these occasions he incurred popular odium and attack, 1765, Nov. 1, by receiving and defending the obnoxious stamps. Colden corresponded during most of his life with Franklin and other men of learning, gave Linnæus an account of over 300 American plants and wrote much on medical, botanical, and other scientific subjects. His *History of the Five Indian Nations,* 1727, was reprinted in London 1747 and '55, and in New York by J. G. Shea 1866. On Gov. Tyron's return 1775, Colden retired to Long Island and there died soon after the great fire in New York.

COLDEN, CADWALLADER DAVID: 1769, Apr. 4—1834, Feb. 7; b. Springhill, near Flushing, L. I.: grandson of Cadwallader Colden. He was partly educated in London, came home 1785, studied law, and practiced it with great success from 1791 in New York, with an interval of three yrs. 1793–96, at Poughkeepsie. He was dist. attorney 1810, col. of vols. 1812, mayor of New York and member of the assembly 1818, in congress 1821–23, and in the state senate 1824–27. He was long a gov. of the New York hospital, and took part in De Witt Clinton's measures for

internal improvements, public education, and the reformation of juvenile offenders. He wrote a *Life of Robert Fulton* (N. Y. 1817), a *Vindication of the Steamboat Right granted by N. Y.* and successfully contested by Vanderbilt (1819), and a *Memoir of the Celebration of the Completion of the N. Y. Canals* (1825). He died at Jersey City.

COLD HARBOR, (First) Battle of: see Gaines's Mill, Battle of, 1862, June 27.

COLD HARBOR, (Second) Battle of: 1864, June 1–3, on the north bank of the Chickahominy, Hanover co., Va. about 10 m. n.e. of Richmond, one of the most sanguinary and unnecessary battles of the civil war. After the battle of Spottsylvania May 11, Gen. Grant endeavored to march past Gen. Lee's flank to Richmond, but Lee foiled his efforts and confronted him in advance of the Chickahominy, behind an intrenched line. At Cold Harbor, June 1, Gen. Grant made an assault by the 6th corps, under Gen. H. G. Wright, and the 18th corps, under Gen. W. F. Smith. Wright was repulsed with heavy loss. Smith gained a foothold. On the 2nd new dispositions were made of the Union army, some parts of it became engaged and the losses during the day were serious. At 4:30 a.m., June 3, an assault was made by the 2nd, 6th, and 18th corps, supported by the 5th and 9th corps. In less than an hour the assaulting column had lost 5,000 men killed and wounded, and met with no success. Other efforts were made, but Lee held his own with a trifling loss, while Grant's loss during the day was about 7,000 killed and wounded. Regular siege approaches were now resorted to, which Grant abandoned on the night of the 12th, and crossed James river to move on Richmond from the south.

Grant had at Cold Harbor 103,000 men, of whom he lost (June 1–12) 1,845 killed, 9,077 wounded, 1,816 missing; an aggregate of 12,738. Gen. Lee had not to exceed 65,000 men, of whom it is estimated he did not lose more than 2,600 in killed and wounded. In his *Personal Memoirs* Gen. Grant says: 'I have always regretted that the last assault on Cold Harbor was ever made. No advantage whatever was gained to compensate for the heavy loss we sustained.'

COLD SENSATION: a sensation initiated by appropriate stimulation of the 'cold' organs of the skin and certain mucous membranes. Cold and warm, which are included under temperature sensation (q.v.), are probably dependent upon different and functionally independent organs of sense.

COLD SPOT: a small area of the skin whose stimulation gives rise to the sensation of cold (see Cold Sensation). Cold spots are distributed over the surface of the body in groups and in isolated areas. They overlie the nervous apparatus which mediates the sensation of cold. Temperature spots were first described in 1883 by M. Blix.

COLD STORAGE: the method now generally employed to preserve perishable articles of food by the aid of freez-

ing machines, which reduces the temperature of the air till the food is needed for consumption. Cold storage warehouses are found in all the principal cities. They are used in connection with large markets to keep unsold materials from one market day to another, and in the transportation of perishable materials by ship or car. Meat thus preserved needs to be used immediately on being thawed out, as it is likely to spoil much more quickly than unfrozen meats. The cold storage building erected by the United States Government at Manila is probably unexcelled in scientific construction. Its storage capacity is 1,200 tons of beef, 200 tons of mutton, 50 tons of butter, 100 tons of potatoes, and 100 tons of bacon, or in other words, sufficient food to feed an army of 10,000 men for three months. In connection with the ordinary freezing apparatus it also has an ice plant with a daily output of 40 tons. The power in the building is furnished by three 200-horsepower engines. The appliances, including an elevator with 2,400 pound lifting capacity, are operated by electricity. An overhead tracking system extending 4 miles connects with the elevator, and the mechanism is so complete that a ship landing at a nearby pier has only to open her hatches and her cargo is transported almost automatically.

COLD'STREAM: border town in the s. of Berwickshire, Scotland, on the left bank of the Tweed, 15 m. s.w. of Berwick: on one of the main routes from Scotland to England. It is irregularly built on a high site. Pop. (1881) 1,616. Near Coldstream is the famous ford of the Tweed, where the Scotch and English crossed in former times, before the erection of Berwick bridge. By this ford Edward I. entered Scotland 1296, and near it he met the Scottish nobles, to settle the dispute of Bruce and Baliol about the crown of Scotland. By this ford also the Scottish army entered England 1640. Here Gen. Monk, 1659-60, raised the regiment still known as the Coldstream Guards (q.v.). Being a border town, Coldstream, like Gretna Green, was formerly celebrated for its clandestine marriages.

COLDWATER, *kōld'waw-tėr:* city, cap. of Branch co., Mich. It is in the southern tier of counties, 153 m. e. of Chicago and 126 m. w.s.w. of Detroit, on the Coldwater River and the Lake Shore & Mich. Southern Railway. Coldwater was first settled in 1830 by Hugh Campbell, became a borough in 1837 and a city in 1862. It is governed by a mayor and a common council of eight members, four members of which are elected yearly for a term of two years. The city has three banks, churches of all denominations, is in the centre of a rich farming community, has cement, shoe, wagon, milling and other industries, and owns and controls its waterworks and electric-light plant. Pop. (1910) 5,945.

COLE, *kōl,* Asahel, N., American agriculturist and editor: b. 1821; d. Wellsville, N. Y., 1889, July 14. He

was educated in the public schools of western New York state, and when 21 entered politics. He figured prominently as a Republican in the party's early days, and in 1852 he founded the *Genesee Valley Free Press*, the pioneer Republican paper. He was no less noted as an agriculturist, being widely known as the father of subsurface irrigation.

COLE, Grenville Arthur James, English geologist: b. London, 1859, Oct. 21. He was educated at the City of London School and the Royal School of the Mines, and has been professor of geology at the Royal College of Science for Ireland since 1390. He has published: *Aids in Practical Geology* (1891, 4th ed. 1902); *The Gipsy Road* (1894); *Open Air Studies* (1895); *As We Ride* (with Blanche Cole) (1902).

COLE, Joseph Foxcroft, American landscape painter: b. Jay, Maine, 1837, Nov. 9; d. Boston, Mass., 1892, May 2. He studied in Paris under Lambinet and Jacque, and exhibited at the Centennial Exhibition in Philadelphia, *Twilight, Melrose Highlands*, and *Coast Scene in Normandy*, for which he was awarded a gold medal. His work was somewhat impressionistic in character.

COLE, King, a legendary British king, described as a 'merry old soul,' fond of his pipe, and fond of his 'bowl,' and fond of his 'fiddlers three.' Colchester is said to have been his residence.

COLE, Samuel Winkley, American musician: b. Meriden, N. H., 1848, Dec. 24. He began his professional career at Portsmouth, N. H.; 1877; was organist of the Clarendon Street Baptist Church, Boston, Mass., 1882-94, and teacher of sight singing in the New England Conservatory of Music since 1883. Since 1884 he has been supervisor of music in Brookline, Mass., and in Dedham, Mass., since 1886. In 1890 he produced Haydn's *Creation* with the Dedham high school, and in 1891 Handel's *Messiah*, being probably the first successful attempt in the United States to produce a complete oratorio with high school pupils. He has written: *Child's First Studies in Music*; *Course in General Sight-Reading*; *New England Conservatory Course in Sight Singing*.

COLE, Thomas, American landscape painter: b. Bolton-le-Moors, Lancashire, England 1801, Feb. 1; d. Catskill, N. Y., 1848, Feb. 11. His taste for art developed early, but met neither encouragement nor direction. He emigrated to America 1819; went, 1820, to Steubenville, O., with his father, a small manufacturer, and attempted, 1822, to begin portrait painting at Clairsville and Zanesville. Turning to landscapes, he made studies near Pittsburgh, and for two winters endured many privations in Philadelphia. Removing, 1825, to New York, he opened a studio in his father's garret on Greenwich street, and visited the Catskills; their scenery stimulated him, and the pictures he now produced won speedy attention. An

era of prosperity now dawned upon him; but he was not content to be a copyist of nature, and determined to follow his imagination. His *Garden of Eden* and *Expulsion* were exhibited 1828; his *View in N. H., Tomb of Gen. Brock*, and *View in the United States* in London 1830–1. He spent 1831–2 in Italy, and acquired a richer style, which did not wholly please his friends at home. The series of five pictures constituting his *Course of Empire* was painted, with others, 1833–36 for Luman Reed of New York, and now belongs to the N. Y. Hist. Soc. The *Voyage of Life*, in four paintings, familiar everywhere through Smillie's engravings, followed, with the *Departure*, the *Return*, and a *Dream of Arcadia*. A copy of the *Voyage of Life*, executed in Rome 1841, won the praise of Thorwaldsen. His Sicilian landscapes (1842) and others were exhibited in Boston and New York 1843–4; his *Mt. Etna*, done in five days, and *White Mts.*, are in the Wadsworth gallery at Hartford. He wrote an unpublished dramatic poem (1835), a tale, and some sketches of travel. Cole died near Catskill, N. Y. His friend Bryant delivered a memorial oration, and his life was written by L. L. Noble, 1855.

COLE, Timothy, American engraver: b. London, Eng., 1852. He emigrated to America in 1857; was burned out by the Chicago fire in 1871, and returned to New York penniless. In 1875 he entered the employ of the *Century Magazine* (then *Scribner's Monthly*), and in 1883 was sent to Europe to engrave pictures by the old masters. The first Italian series was finished in 1892, the Dutch and Flemish series in 1896, the English series, 1900, and he has of late been at work on a Spanish series. He stands easily at the head of living wood engravers. His notes and short papers to accompany his engravings in the 'Century' have been published separately. He received a first class medal at the Paris Exposition 1900, and the Grand Prix at the St. Louis Exposition 1904.

COLE, Vicat, English landscape artist: b. Portsmouth, Eng., 1833; d. London 1893, April 6. He was a pupil of his father, George Cole (1810–83), a landscape painter also, and painted many studies from nature in Surrey, *The Heart of Surrey* being one of his most noted works.

COLE, William Morse, American teacher: b. Boston, Mass. 1866, Feb. 10. He graduated at Harvard in 1890, and was instructor in political economy there 1890–3, and since 1900. From 1894 to 1898 he was a university extension lecturer, and secretary of the Massachusetts Commission on the Unemployed. He is the author of *An Old Man's Romance* (1895), under the pseudonym of 'Christopher Craigie.'

COLEBROOK, *kōl'-brûk*, Henry Thomas, English Sanskrit scholar: b. London 1765, June 15; d. there 1837, Mar. 10. He early went out to India, where, having served in various civil capacities under the E. India Company, he was appointed Sanskrit prof. in the newly founded college

at Fort William. Afterward he became a judge at Mirzapore, and subsequently held the appointment pres. of the board of revenue. During his residence in India, he had gained an extensive knowledge of the literature of the Vedas and their commentators, as well as of the writings of ancient Hindu grammarians, metaphysicians, and mathematicians. A sound critical judgment marks all his writings. He was a director of the Bengal Asiatic Soc., and many of the most valuable essays in the *Asiatic Researches* were by him. These, with other papers, were republished as *Miscellaneous Essays*, 2 vols., 1837. He also made translations from the Sanskrit works on Hindu law, algebra, arithmetic, and mensuration, which were important contributions to the history of mathematics. Among his other publications are a Sanskrit dictionary and grammar, and treatises on the philosophy and sacred books of the Hindus. He died in London, where he had for some years been pres. of the Asiatic Society.

COLEMAN, *kōl'man*, Arthur Philemon, Canadian educator: b. Lachute, Quebec, 1852, April 4. He was educated at Victoria University and at the University of Breslau, and after some years of scientific work he became professor of geology and natural history in Victoria University, and in 1891 professor of assaying and metallurgy in the School of Practical Science, Toronto.

COLEMAN, John, American clergyman: b. Baltimore, Md., 1803, Feb. 11; d. St. Louis, Mo., 1869, Sept. 16. Until 1834 he was a Methodist. He entered the Protestant Episcopal ministry in 1836, and for 20 years was rector of Trinity Church, Philadelphia. He edited the religious paper Banner of the Cross (Philadelphia); and also edited Faber's 'Difficulties of Romanism' (1840); and Wilmer's 'Episcopal Manual' (1841).

COLEMAN, Leighton, American Protestant Episcopal bishop: b. Philadelphia 1837, May 3. He was graduated at the General Theological Seminary in 1861, was ordained to the Episcopal ministry in 1862, and after holding important rectorships, was consecrated bishop of Delaware in 1888. He has written *The Church in America* (1895); *History of the American Church* (1901); etc.

COLEMAN, Lyman, American clergyman and scholar: b. Middlefield, Mass., 1796, June 14; d. Easton, Pa., 1882, March 16. He graduated at Yale 1817; taught in Hartford, Conn., 1817–20; was tutor in Yale 1820–5, studying theology at the same time. He was pastor of the Congregational Church in Belchertown, Mass., for seven years, when he again took up teaching. He studied in Germany 1842–3, where he formed a close friendship with Neander, and returning, taught German at Princeton and Amherst 1845–6. In 1856 he travelled extensively through the Orient. He was professor of Latin and Greek in Lafayette College from 1861 to 1868, when he was transferred to the chair of Latin, which he held until his death. His writings, which were highly praised and regarded in their day, are:

Antiquities of the Christian Church (1841), translated from the German; *The Apostolical and Primitive Church* (1844); *Historical Geography of the Bible* (1850); *Ancient Christianity* (1852); *Historical Text-Book and Atlas of Biblical Geography* (rev. ed. 1859); *Prelacy and Ritualism* (1869); and *Genealogy of the Lyman Family in Great Britain and America* (1872).

COLEMAN, William Tell, American pioneer: b. Cynthiana, Ky., 1824, Feb 29; d. San Francisco, Cal., 1893, Nov. 22. In 1849 he made the overland trip to California, and opened several stores for the sale of mining supplies. When in 1851 the famous vigilance committee of San Francisco was formed to rid the city of its formidable criminal element, Coleman became one of the most active members. In 1856 the committee was revived in consequence of the murder of James King, an editor of William, Cal. Coleman took charge of the trials, resisted official pressure against interfering with 'the people,' directed the execution of Casey and the other murderers, and carefully avoided any clash with the United States authorities. From 1857 to 1864 he directed his business from New York, aided in suppressing the draft riot, and contributed liberally to patriotic benefactions. In 1877–8, at the request of the citizens of San Francisco, he organized the Committee of Safety, to fight Dennis Kearney and his sandlots mob, and in this was highly successful. In 1888 his firm failed with liabilities of $2,000,000, but in 1892 he personally paid off his entire indebtedness, more than he was legally bound to pay, with interest.

COLENSO, John William, D.D: see Natal, Bishop of.

COLEOPTERA, n. plu. *kŏl'-ĕ-ŏp'tĕr-ă* [Gr. *kolĕŏs*, a sheath; *ptĕron*, a wing]: the order of insects called beetles whose forewings form a membranous or horny sheath or covering for the hinder pair of wings. Col'eop'teral, a. pertaining to; also Col'eop'terous, a. *-ŭs*. Col'eorhi'za, n. *-ŏ-rī'ză* [Gr. *rhiza*, a root]: the sheath which covers the young rootlets of grasses, etc.

COLEOP'TERA, or Coleop'terous insects: order of insects which, with a little change of limits and characters, has been recognized since the days of Aristotle. The number of species enumerated by naturalists, and of which examples are gathered in museums, amounts to many thousands. The Coleoptera are sometimes collectively called *beetles*, though that name is generally more limited in its application, and many of them are known by other names, as weevils, lady-bugs, etc. The glow-worm and the blistering-fly (*cantharis*) belong to this order.

The Coleoptera may be described as four-winged insects which have the first pair of wings converted into crustaceous wing-cases (*elytra*) and the second pair of wings folded crosswise under these when not in use. In some of them the membranaceous wings are absent, or rudimentary, in one or in both sexes, for there is often a difference of the sexes in this respect; more rarely the elytra also are

absent in one sex, as in the female glow-worm. The head and antennæ vary extremely in different Coleoptera, the antennæ often differ considerably in the male and female of the same species. The first segment of the thorax (*prothorax*) is greatly larger than the other two. The abdomen is united to the thorax by its whole width, and not by a stalk. Cloeoptera have two composite eyes, and no additional simple or stemmatic eyes (*ocelli*). The mouth is fitted for cutting, gnawing, tearing, or chewing, but never at all for suction, and exhibits in the greatest perfection of development the complicated structure which belongs to the mouth of all the *masticating* or *mandibulated* insects. See INSECTS. The upper jaws, or *mandibles* are hard and horny in most of the Coleoptera but comparatively soft in those which feed on vegetable juices, or on putrescent animal matter. The food of the Coleoptera is very various: some prey on other insects, worms, etc.; some feed on carrion; some on rotten wood, some on wood in a fresh and growing state, some on the roots of grasses and other plants, some on grain, some on leaves, some on flowers, etc. The food of their larvæ is equally various; but perfect insects and larvæ generally are alike in being very voracious. Their digestive organs exhibit great diversities, according to their food. The coleoptera are among the insects which undergo complete transformations, and of which the pupa in inactive. The larva (grub) is generally like a short, thick worm, with a scaly head and mouth, generally with six legs, of which, however, some species are destitute. Coleopterous insects are distributed over all parts of the world, but are most abundant within the tropics, where also they attain their greatest size and greatest brilliancy of colors. The splendor of the metallic tints exhibited by many of the tropical species is not excelled in nature. The order, however, contains also many species of dull hue, and unattractive appearance. Many of the Coleoptera are noted for the mischief which they do to crops, stores of provisions, timber and articles of furniture, trees, etc.; few of them are of any immediate use to man, the principal of these being the blistering-flies or cantharides.

COLERAINE, *kōl-rān′:* municipal borough and seaport in Londonberry co., Ireland; chiefly on the right bank of the Bann, 4 m. from the sea, 47 m. n.n.w. of Belfast, with which it is connected by railway. It consists of a central square and several diverging streets. Coleraine has manufactures of fine linens, leather, paper, and soap, and a large salmon and eel fishery, which produces a rent of nearly £5,000. The river Bann has been deepened, so that larger vessels reach the quay at Coleraine. Pop. 6,800.

COLERIDGE, *kōl′rĭj*, CHRISTABEL ROSE, English novelist: b. Chelsea, England, 1843. She is a daughter of Derwent Coleridge (q.v.), and for many years assisted Miss Charlotte Mary Yonge (q.v.) in editing *The Monthly Packet*. She has published *Lady Betty* (1869); *Hanbury Mills* (1872); *Hugh Crichton's Romance* (1873): *The Face*

of Carlyon and Other Stories (1875); *The Constant Prince*; (1878); *Kingsworth* (1881); *An English Squire* (1881); *The Girls of Flaxby* (1882); *A Near Relation* (1886); *A Plunge into Troubled Waters* (1888); *Reuben Everett* (1888); *Amethyst* (1891); *Waynflete* (1893); *The Tender Mercies of the Good* (1895); *The Main Chance* (1897); *The Thought Rope* (1898); *Tricks and Trials* (1899); *The Winds of Cathrigg* (1901); *Fifty Pounds*; *The Green Girls of Greythorpe*; *Life and Letters of Charlotte Mary Yonge* (1903); etc.

COLERIDGE, DERWENT, English clergyman and author: b. Keswick, England 1800, Sep. 14; d. Torquay, Devonshire 1883, April 2. He was a son of Samuel Taylor Coleridge (q.v). He took orders in the Established Church, and engaging in teaching was master of the grammar school in Helston, Cornwall, 1825–40; and principal of Saint Mark's College, Chelsea, 1841–64. He was rector of Hanwell, Middlesex, 1864–80. He published *The Scriptural Character of the English Church* (1839).

COLERIDGE, ERNEST HARTLEY, English literary editor: b. 1846, Dec. 8. He is a son of Derwent Coleridge (q.v.) and was educated at Balliol College, Oxford. He engaged in tutoring 1872–93, and besides editing the *Letters of Samuel Taylor Coleridge* (1895); *Animæ Poetæ*, selections from unpublished notebooks of S. T. Coleridge (1895); and the *Poetical Works of Lord Byron* (1898–1903); *Life and Correspondence of John Duke, Lord Coleridge* (1904); has published a volume of *Poems* (1898).

COLERIDGE, HARTLEY, English poet: b. Clevedon, near Bristol, 1796, Sept. 19; d. Rydal, Westmoreland, 1849, Jan. 6. He was the eldest son of S. T. Coleridge (q.v). In 1815, Coleridge was entered a scholar of Merton College, Oxford. At the university he became the slave of intemperate habits, and after obtaining the Oriel fellowship 1818. he was judged by the authorities to have forfeited it. He then went to London, wrote for the *London Magazine*, publishing some sonnets of remarkable beauty. He afterward went to Ambleside to receive pupils, but the scheme failed. Near this little town, so associated with genius, he resided till his death. He inherited much of his father's genius, and all his weakness of will. He wrote good verses and better prose. As a writer of verse he is best known by his sonnets, some of which are surpassed only by those of Milton and Wordsworth. His most important prose works are the *Worthies of Yorkshire and Lancashire*, and the *Life of Massinger*.

COLERIDGE, HENRY NELSON, English writer: b. Ottery Saint Mary 1796, Sept. 19; d. 1843, Jan. 26. He was a nephew of S. T. Coleridge (q.v.) and was educated at Eton and King's College, Cambridge. Having accompanied, in 1825, his uncle, the Bishop of Barbadoes, on a voyage to that island, on his return he published an account of his sojourn, under the title of *Six Months in the West Indies*. He was called to the bar in 1826, and shortly afterward married his cousin Sara, only daughter of Samuel

Taylor, and sister to Hartley, Coleridge. In 1830 he published an *Introduction to the Study of the Greek Classic Poets*, and after his uncle's death set himself to the task of committing to writing the reminiscences of Coleridge's conversation, which were published under the title of *Specimens of the Table-talk of the Late Samuel Taylor Coleridge*. He also edited the posthumous writings of his uncle, including three volumns of *Literary Remains*, published in 1836 and 1838, and *Confessions of an Inquiring Spirit*, in 1840.

COLERIDGE, Herbert, English philologist: b. Hampstead, Eng., 1830, Oct. 7; d. London 1861, April 23. He was a son of Henry Nelson Coleridge (q.v.), and was one of the original planners of the dictionary outlined by the Philological Society and which in subsequent years has expanded into the *New English Dictionary on Historical Principles* in process of preparation from 1884.

COLERIDGE, John Duke Coleridge, Lord, Lord Chief Justice of England: b. London, 1820, Dec. 3; d. 1894, June 14. He was the eldest son of Sir John Taylor Coleridge (q.v.), judge, a nephew of Samuel Taylor Coleridge. He was educated at Eton and Balliol College, Oxford, and was called to the bar at the Middle Temple in 1846. In 1855 he was appointed to the recordership of Portsmouth, six years later he became a queen's counsel, and soon afterward was chosen a bencher of the Middle Temple. From 1865 till 1873 he represented Exeter in the House of Commons as a Liberal, and in 1868 he became solicitor-general under Mr. Gladstone, being knighted at the same time. Three years later he became attorney-general, and in 1873 he was appointed chief justice of the court of common pleas. In the same year he was raised to the peerage as Baron Coleridge of Ottery St. Mary, and in 1880 succeeded Sir Alexander Cockburn as lord chief justice of England. Lord Coleridge distinguished himself very highly when acting as chief counsel for the Tichborne family in the famous trial of 1871-2. He was the first lord chief justice who was granted the office with his present title, instead of the older one of lord chief justice of the court of queen's bench. He visited the United States in 1883 and received much attention, especially from the members of his profession.

COLERIDGE, Sir John Taylor, English jurist: b. Tiverton, Eng., 1790; d. Ottery Saint Mary, 1876, Feb. 11. He was educated at Oxford, where he and Keble became close friends, and was called to the bar of the Middle Temple in 1819. In 1835 he was appointed justice of the king's bench, and was sworn of the privy council in 1858. As a literary critic he took high rank, and besides editing an edition of *Blackstone's Commentaries* (1825); published a *Life of John Keble* (1869).

COLERIDGE, Miss M. E., English novelist: She has published: *The Seven Sleepers of Ephesus* (1893): *The*

King With Two Faces (1897) *Non Sequitur* (1900); *The Fiery Dawn* (1901).

COLERIDGE, Samuel Taylor, English poet: b. Ottery Saint Mary, Devonshire, 1772, Oct. 21; d. Highgate, 1834, July 25. He was educated at Christ's Hospital, and numbered Charles Lamb among his school-fellows. His acquirements in Greek were extensive; and before his 15th year he plunged boldly into the sea of metaphysics, and exercised himself therein until the day of his death. His industry, though desultory, was great; he read whole libraries. Full of book-knowledge, and without ambition or any practical bent, he was on the point of apprenticing himself to a shoemaker, when his head-master interfered and rescued to literature and thought his most distinguished scholar. A copy of Mr. Bowle's sonnets falling into his hands at this time, attracted him toward poetry, in which for a time he found rest.

In 1791, Coleridge entered Jesus College, Cambridge. At the university he displayed no mathematical aptitude; his whole mind was given to classics, and he obtained a prize for a Greek ode. He did not take a degree. During the second year of his residence at the university, in a fit of despondency occasioned by an unsuccessful love affair, he quitted Cambridge for London, and enlisted in the 15th Dragoons, under the assumed name of Comberbach. He never advanced beyond the awkward squad, and he bore to the close the reputation of the worst rider in the corps. One of the officers luckily discovered his classical acquirements, and, becoming acquainted with his real history, communicated with his friends, and Coleridge effected his discharge.

On his release the poet proceeded to Bristol, and making the acquaintance of certain poetic enthusiasts—Southey was one of the number—whose minds were somewhat unsettled by the revolutionary movement in France, he formed a scheme to emigrate to the banks of the Susquehanna, in Pennsylvania, and there, in pastoral peace and plenty, to bring back the golden age to man. Coleridge found, to his surprise, that before Paradise could be thus regained, money was indispensable; and as of *that* both he and his friends were absolutely devoid, the dream of 'Pantisocrary' had to be given up. About this time Joseph Cottle, book-seller in Bristol, paid Coleridge 30 guineas for a volume of poems, and after many delays and the advancement of additional sums, the volume was published. In 1795, he married Miss Fricker—his friend Southey on the same day wedding another sister—and removed to Nether Stowey, a village in Somersetshire, in which neighborhood Wordsworth was then staying. It was here, surrounded with beautiful scenery, and in daily communication with the graver and intenser spirit of his friend, that Coleridge's principal poems were composed. Here he wrote the *Ancient Mariner*, and the first part of *Christabel*, the music of which took captive Scott and Byron, and which was imitated by both with no re-

markable success. At this time, Coleridge was in theology a Unitarian, and preached frequently to congregations of that religious sect. In 1798, he visited Germany, and studied at Göttingen. On his return to England, he went to reside at the lakes, where Wordsworth and Southey then lived; and then it was that the nickname 'Lake poets' was applied by the opposition reviews to the trio of friends —a nickname which has long since ceased to be a reproach. In the year in which Coleridge went to live in Cumberland he published his noble translation of Schiller's *Wallenstein*. Having formed a connection with the *Morning Post*, he contributed to its columns articles on politics and literature. In 1804, he was at Malta, acting as sec. to the governor, Sir Alexander Ball, which appointment he held nearly a year and a half. In 1808, he delivered lectures on poetry and the fine arts at the Royal Institution, London; and the next year he commenced the publication of *The Friend*, a serial which did not find much commercial success. By this time Coleridge had written, if he had not published, his finest poems; and imprudent, without resolution or strong sense of duty, and with a taste for German metaphysics, and opium gradually taking possession of him, he left his wife and family with Southey, and went to London, where he resided first with Mr. Basil Montague, and afterward, till his death, with Mr. Gillman at Highgate. Here the rays of his splendid genius shone more and more fitfully through clouds of unsystematic metaphysics, and his mental and moral fibre became more and more debilitated by opium. He meditated many theological and philosophical works, which were to 'reduce all knowledge into harmony,' and many epic poems which were to be the glory of literature, and never advanced so far as the first sentence of either. With the subsidence of the writing faculty, the talking faculty developed itself in Coleridge after a fashion unknown to ancient or modern times. At Mr. Gillman's house he held weekly *conversazioni*, discoursing on every subject, human and divine, for hours; and thither, from all parts of the country, ardent young men came rushing to listen to the wisdom of the sage, in 'linked sweetness' exceedingly 'long drawn out.' Toward the close of his life, his theological opinions underwent a change, and he became a believer in the Trinity. All intellectual pride had ceased, and the most childlike humility had taken its place. He seemed to be conscious that the greatest power which for generations had been granted to any Englishman had been by him miserably wasted. He died at Highgate, in his 62d year.

As an intellectual power, Coleridge manifested himself in a great variety of ways. Compared with his contemporaries, he did not produce a very large amount of original poetry; and of what he did produce a considerable portion is prosaic and artificial, but the residue is of the highest order. No poet ever evolved such exquisite fantasies or wove the English language into such webs of spiritual melody. He is also to this day the greatest of philosophical

critics. He was the first who gave a definite reason for the 'faith that is in us' regarding Shakespeare. He was the first representative of German literature and philosophy in England, and, till Carlyle came, the most potent. His own philosophical and theological writings, though, from constitutional indolence and irresolution, in some measure incomplete, are full of incidental merits, and have given a new impulse to English thought; yet it is right to mention here, that in his philosophical writings he has been convicted of the most extraordinary plagiarism. Professor Ferrier, in *Blackwood's Magazine*, 1840, Apr., 'tracked the footsteps of this literary reaver through the Hercynian brakes' of Schelling's metaphysics (see also Hamilton's Reid, note), and has shown page after page pilfered from the German author. It as been argued, however, by way of explanation and palliation, that Coleridge, who certainly did not lack original and penetrating powers as a metaphysician, was, from the sluggishness and irresolution of his mind, better fitted to conceive in outline, and then adapt from others in detail, than to elaborate for himself a system of thought, or even the section of a system; while his notoriously confused and dreamy memory would be apt to mingle and confound what was his own with what *might have been* his own. As a thinker, Coleridge exerted greater influence through conversation than through books; and to him we are largely indebted for what the young men who listened to him at Highgate, among whom were Sterling, Hare, and Maurice, have since produced. A complete edition of his *Poetical and Dramatic Works, with Memoir*, was issued 1877.

COLERIDGE, Sara: 1802, Dec. 22—1852, May 3: b. Keswick, Cumberland; fourth child and only daughter of the poet Samuel Taylor Coleridge. Though never sent to school she had peculiar advantages in the intimacy of Southey and Wordsworth; she mastered six languages, and when not 20 years of age translated Dobrizhoffer's *Account of the Abipones* (3 vols. 1822). A history of the *Chevalier Bayard* followed, from the mediaeval French (2 vols. 1825). After a seven years' engagement she married her cousin Henry Nelson Coleridge (1800–43), lawyer and author. They lived at Hampstead till 1837, and then at Chester Place, Regent's Park. His death left her the unfinished task of editing her father's works, which she discharged with signal ability, adding an *Essay on Rationalism* and other matter of her own. Her *Pretty Lessons in Verse for Good Children* (1834) were very popular, and her *Phantasmion, A Fairy Tale* (1837) won high praise. She died in London. Her *Memoirs and Letters* (2 vols. 1873) were edited by her daughter.

COLERIDGIAN, a. *kōl-ridj′ĭ-an:* pertaining to the philosophy of Coleridge: N. one who adopts the philosophy of S. T. Coleridge (q.v.).

COLEROON′: largest and most northerly branch from the Cauvery, flows, after a course of 93 m., into the Bay of Bengal between Trichinopoly on the n. and Tanjore on

the s., separating these two districts through its last 80 m. This river is remarkable for two specimens of what is called an *anakatt*, being something of the nature of a weir or dam. For many years the bed of the Coleroon has been observed to be gradually deepening, while that of the Cauvery, below the point of divergence, was proportionally rising, so as constantly to lessen the supplies for the irrigation of Tanjore. In 1836, however, two anakatts, an upper and a lower, were constructed, to throw more water into the Cauvery—works which were soon found to act so powerfully as to require the balance of an anakatt across the Cauvery itself.

COLET, *kŏl′ĕt*, JOHN, Dean of St. Paul's London: 1466-1519, Sep. 16; b. London: educated at Oxford. He travelled in France and Italy, became acquainted with Erasmus, and the friend of his own famous countrymen Grocyn, Lilly, Linacre, and Latimer. Like them he studied the Greek language with zeal, and he was one of the most distinguished of the Englishmen who promoted the 'New Learning.' He did much to awaken that spirit of inquiry which led to the Reformation, especially by lectures and the expounding of Scripture in his own cathedral, and was once denounced as a heretic. He is known as the founder of St. Paul's School (1512), and author of works on grammar, *Daily Devotions*, and the *Monition to a Godly Life*.

COLEUS, n. *kŏl′ē-ŭs* [Gr. *kolĕŏs*, a sheath, referring to the manner in which the stamens are united: L. *culĕŭs*, a bag]: a genus of plants, ord. *Labĭātæ*, some of whose species yield beautiful hybrid forms for the garden, many having highly colored yellow and red leaves. COLEIN, n. *kŏl-ē′ĭn*, a red resinous-looking substance found abundantly in many of the species, and in many flowers and fruits, supposed to be identical with the coloring matter of red wine.

COLFAX, *kōl′făks*, SCHUYLER: 1823, Mar. 23—1885, Jan. 23; b. New York: statesman. He received a very limited education, and on the death of his father and remarriage of his mother settled in New Carlisle, Ind., 1836. He was deputy auditor of St. Joseph co. under his stepfather 1841-49; made campaign speeches for Henry Clay, 1844; was editor of the South Bend *Free Press* a year, then bought it, changed its name to the *St. Joseph Valley Register*, and conducted it successfully; and was sec. of the Chicago harbor and river convention 1847, July, and of the Whig convention at Baltimore 1848. In 1849 he was elected a member of the convention to revise the constitution of Ind., and declined a proffered nomination for the state senate; in 1854 was elected member of congress as a republican, and was re-elected to every session till 1869; and was speaker of the house 1863, Dec. 1869, Mar. In 1868 he was elected vice-pres. of the United States on the ticket with Gen. Grant, and 1872 was defeated for nomination by Henry Wilson. Charges of corruption in connection with the Credit Mobilier of America

were brought against him 1873, but the house judiciary committee reported that there were no grounds for his impeachment. Mr. Colfax was the founder of the female branch of American odd-fellowship, the *Daughters of Rebekah*, and a popular lecturer. He died suddenly at Mankato, Minn.

COLGATE, James Boorman: banker: b. New York 1818, Mar. 4. His gifts to religious and educational institutions are very large. To Colgate Univ. (q.v.), of which he had already been a very liberal benefactor, he gave 1891, $1,000,000 as an endowment fund. Other schools (Baptist) that have shared in his bounty are Rochester Univ., Rochester Theol. Sem., Colby Acad., Peddie Institute, Columbian Univ.—His father, William Colgate (1783-1875, b. England), was one of the founders of the (Bapt.) Amer. and Foreign Bible Soc. Samuel Colgate (b. New York 1822, Mar. 22; d. Orange, N. J., 1897, April 23), was known as a philanthropical worker and giver.

COLGATE UNIVERSITY: institution of learning at Hamilton, Madison co., N. Y.; formerly Madison Univ.; under control of members of Baptist churches, and supported partly by church contributions. The nucleus of the univ. was the Hamilton Literary and Theological Institution (Bapt.), founded 1820, reorganized 1831 as three institutions under one board of trustees—Hamilton Theol. Sem., Madison Univ. and Colgate Acad. These were reunited 1846 and chartered as Madison Univ.; finally the name was changed in 1890 to C. U. in recognition of benefactions of the Colgate family to the institution. The academy has a fine building and a large campus. Eaton Hall (built in 1886) is devoted exclusively to the uses of the Theo. Sem. The college has a number of buildings, Alumni Hall (containing the main lecture rooms, chapel, and auditorium), East and West Colleges, and an excellent laboratory. The gymnasium was built in 1893 and is well equipped with modern apparatus. The library building was the gift of Mr. James B. Colgate and contains 50,000 volumes, including a unique documentary history of the Baptist denomination, the gift of the late Samuel Colgate, comprising more than 60,000 pamphlets and bound volumes, which have been carefully catalogued for use, besides many special historical collections. A new science building has been erected. In 1891 Mr James B. Colgate gave the univ. an endowment of $1,000,000. The univ. has a large number of scholarships at its disposal. The students number about 470 with a teaching faculty of over 46.

COLIBERTS, n. *kŏl'ĭ-bėrts*, [L. *collibertus*, a fellow freedman]: tenants in socage, particularly villains (peasants) manumitted and raised to the rank of freemen, doing, however, certain duties, partly servile, to their lord.

COLIBRI: see Humming-bird.

COLIC, n. *kŏl'ĭk* [L. *colĭcus;* Gr. *kōlĭkos*, pert. to the colic —from Gr. *kōlon*, the largest of the intestines: F. *colique*]: term used by the latter Greek and Roman physicians to denote diseases attended with severe pain and flatulent distension of the abdomen, without diarrhea or looseness of the bowels: see ALIMENTARY CANAL. COLIC, a. affecting the bowels. COLICKY, a. *kŏl'ĭ-kĭ*, pertaining to.—The disease (commonly called *gripes* or *belly-ache*) is now generally believed to be spasmodic in character, and to be dependent upon irregular contractions of the muscular coat of the intestines; its supposed particular connection with the colon, or large intestine, however, is not usually to be made out from the symptoms. Painful disorders of the bowels are very frequent in persons who are not attentive to the regular evacuations, especially when they are exposed to cold so as to experience chill or coldness of the feet, which will often suffice to bring on an attack of colic. The disease is usually attended with constipation (q.v.), and ceases when the regular action of the bowels is restored, though often in this case the operation of medicine is attended by continued pain for a time. Warm fomentations to the abdomen may be employed with advantage, sometimes medicated with opium, or decoction of poppy-heads; and great relief is commonly experienced from friction with a warm liniment such as opodeldoc, or the soap and opium liniment. Warmth to the feet, and the recumbent posture, are also to be recommended. In very severe or protracted cases, opium may be taken internally. A good remedy in such cases is a full dose of castor-oil (one ounce or more for an adult), with 30 or 35 drops of laudanum, or of solution of morphia. (Opiates should not be given to children except under medical advice, and in very reduced doses). When colic resists such mild and simple remedies as the above—when it is accompanied by tenderness of the belly, or by hard swelling in any part of it—when constipation is obstinate, or vomiting is present—when there is feverishness, or tendency to exhaustion—or when there is reason to believe that it may depend on any other cause than the mere accumulation of the products of digestion in the intestines, no time should be lost in seeking the best medical assistance that can be procured; for colic is closely allied as a symptom to several very severe and dangerous diseases. One of these complicated forms of colic is termed Ileus [Gr. *eileon*], from the idea that its seat was in the small intestine (*ileum*). It is attended with obstruction of the bowels, often from mechanical twisting or involution of one part with another (hence termed *volvulus*). This is, of course, a disease of extreme danger. The only treatment that can be attempted without medical assistance, is the employment of large injections by the lower bowel, and opium in moderate and repeated doses ($\frac{1}{2}$ grain to 1 grain, or 12 to 20 drops of laudanum) by the mouth, carefully watched. and discontinued if there is any sign of narcotism: see OPIUM. Colic pains are present also in peritonitis (q.v.), another most dangerous form of disease; and they form one

marked symptom of the slow poisoning by lead (q.v.), occasionally observed as the consequence of contamination of drinking water by leaden cisterns, etc. In this form, the treatment is different from that of simple colic: see LEAD-POISONING.

COLICODENDRON, n. *kŏl-ĭ-kō-dĕn′drŏn* [Gr. *kōlikos*, suffering in the colon; *dendron*, a tree]: a genus of *Capparidaceæ*, consisting of trees and shrubs, in tropical America.

COLIGNY, *ko-lēn-ye′*, GASPARD DE: 1517, Feb. 16—1572, Aug. 24; b. Châtillon-sur-Loing: French admiral and general. Introduced at court, he served under Francis I. in Italy, where he evinced great bravery. Under Henry II. he was made an infantry col., and 1552, admiral of France. On the death of Henry II., Coligny, who had previously adopted the reformed faith, became, with the Prince of Condé, one of the great leaders of the Huguenots. In this capacity he was remarkable alike for prudence and bravery. He had the intelligence to plan, as well as the daring to execute, and above all, a heart that was not to be cast down by disasters. At the battles of Dreux and Jarnac, in the former of which Condé was taken prisoner, and in the latter killed, Coligny's skill saved the remains of the Protestant army. When peace was concluded, 1570, Coligny went to court, and was apparently well received by the king (Charles IX.); but the enmity of the Guises, by whom Coligny was unjustly accused of murdering the Duke of Guise at the siege of Orleans, was stirred up against him, and an attempt was made by one of their menials to assassinate him on the street, 1572, Aug. 22. This attempt at individual murder was but a preliminary to the general massacre of Huguenots two days afterward, in which Coligny was basely slaughtered, his body being exposed to the vile outrages of the mob.

COLIMA, *kō-lē′mȧ:* volcano of the Cordilleras, in Mexico, height about 12,000 ft.; lat. 20° n., not far from the w. coast of the republic.

COLIMA: a State of Mexico; extending about 100 m. along the Pacific coast; area 2,272 sq. m. Pop. (1900) 65,026. Large quantities of coffee, sugar, rice, tobacco, maize, and cotton are grown, the soil being very fertile and the climate warm.

COLIMA: capital of the State of C. in Mexico, comprising nearly the half of its population; in a fertile plain s.w. of the volcano of Colima.

COLIN, n. *kŏl′in* [F. *Colin*, dim. of *Colas*, a contr. of *Nicholas, Nicolas*]: the American Partridge, *Perdrix* (or *Ortyx*) *Virginianus:* see VIRGINIAN QUAIL.

COLISEUM, n. *kŏl′ĭ-sē′ŭm*, properly (though not in common use) COL′OSSE′UM, *kŏl′os-* [L. *colossēŭs*, of a gigantic size—so named from the *colossus* of Nero adjacent to it]: the amphitheatre of the emperor Vespasian at Rome: see AMPHITHEATRE.

COLL, or COL, n. *kŏl* [F. *col*—from L. *collum*, the neck]: n. *geog.*, a rising neck of land separating two valleys.

COLL, *kŏll:* one of the Western Isles of Scotland, off the w. coast of Mull, and forming part of Argyleshire, 2½ m. n.e. of Tiree Isle. It is 14 m. long from n.e. to s.w.; average of breadth 2½ m. More than a third of it is cultivated, or in pasture. The isle is low and rocky, and composed of gneiss, approaching to granite and hornblende slate. The employments are agriculture and fishing. Pop. about 500.

COLLABORATOR, n. *kŏl-lab′ŏ-rā′tėr* [F. *collaborateur* —from L. *collabōrārĕ*, to work together—from *con*, together; *labŏrārĕ*, to labor]: one who assists in labor, usually literary or scientific; frequently used in the F. form, COLLABORATEUR, n. *kŏl-lăb′ŏ-râ-tėr′*. COLLAB′ORA′TION, n. *-rā′shŭn*, united labor of two or more.

COLLAMER, *kŏl′la-mėr*, JACOB, L.L.D.: 1791, Jan. 8— 1865, Nov. 9; b. Troy, N. Y.: U. S. senator. He was early taken to Burlington, Vt., supported himself by studying, graduated at the Univ. of Vt. 1810, served as a lieut. of artillery 1812, and was admitted to the bar at St. Albans 1813. He practiced 20 years in Washington, Orange, and Windsor cos., sat for Royalton in the assembly 1821-22 and 1827-28, was a judge of the Vt. supreme court 1833-42 and 1850-54, in congress 1843-48, postmaster-gen. under Pres. Taylor 1849-50, and U. S. senator 1855-65, serving as chairman of the library committee and of that on post-offices and post-roads. He died at Woodstock, Vermont.

COLLAPSE, n. *kŏl-lăps′* [L. *collapsus*, fallen in ruins—from *con*, together; *lapsus*, fallen]: a falling in or together, as a balloon when the gas has escaped; extreme depression of the bodily energies: V. to fall inward or together; to close by falling together. COLLAPS′ING, imp. COLLAPSED′, pp. *-lăpst′:* ADJ. come to nothing; become a failure.

COLLAR, n. *kŏl′lėr* [F. *collier;* OF. *coller*, a necklace, a collar—from *col*, the neck—from L. *collum*, the neck: It. *collo*]: an ornamental article of dress worn around the neck; that part of the harness which surrounds the neck of a horse or other animal used as a beast of burden; the large gold chain worn by knights of certain orders, and civic dignitaries; in *arch.*, a ring: V. to take hold of one by any article of dress around the neck; to roll up flesh-meat and bind it with cord. COL′LARING, imp. COL′LARED, pp. *-lėrd:* ADJ. seized by the collar; rolled together, as beef or pork. COLLAR-AWL, a form in which the eye-pointed needle has been used for many years. It is used in sewing collars, the wax-end being passed through the material by its means, and drawn tightly by its hands. COLLAR-BEAM, a tie-beam uniting the breasts of a pair of rafters, to keep them from sagging or spreading. It serves as a strut, a tie, and often as a ceiling-joist for a garret story. COLLAR-BLADES, short segments of wood or metal which embrace the collar worn by a horse, to which the traces are attached; called also *hames* or *haims*. COLLAR-BONE, bone on each side of the neck; the clavicle. COLLAR-CHECK, a kind of heavy woolen goods made for saddlery. COLLAR-DAY, a day on which the knights of various orders appear

at court levees wearing their collars. COLLARETTE, n. *kŏl′ă-rĕt′*, a little collar. COLLARINO, *kŏl-lėr-ē′nō* [It.]: that part of a column which is included between the fillet and the astragal. To SLIP THE COLLAR, to disentangle one's self from a thing that binds, or from a difficulty; to get free.

COL′LARING: cylindrical part of the capital in the Doric and Tuscan orders; often termed the neck.

COLLATE, v. *kŏl-lāt′* [L. *collātus*, brought or carried together—from *con*, *lātus*, carried]: to bring or lay together for comparison; to bring together and compare manuscript or books; to gather and place in order; to place in a benefice, said of a bishop when he is the patron. COLLA′TING, imp. COLLA′TED, pp. COLLA′TOR, n. *-tėr*, one who. COLLA′TABLE, a. *-tă-bl*. COLLA′TION, n. *-lā′shŭn* [F. *collation;* OF. *collacion*—from L. *collātĭōnĕm*]: the comparing of manuscript or books with others of the same kind for correction of errors, etc.: presentation to a benefice by a bishop or other ordinary. When a bishop *confers*, or collates to a benefice, presentation and institution both are comprised in the act of collation; a repast between full meals to which originally every one brought his share. COLLA′TIVE, a. *-lā′tĭv*, pertaining to an advowson when the bishop is the patron.

COLLATERAL, a. *kol-lăt′ėr-ăl* [mid. L. *collaterālis*—from L. *con*, together; *lătus*, a side]: side by side, or on the side; running parallel; happening or coming together in connection with an event, as *collateral circumstances;* in addition to, or over and above: not direct or immediate; descended from a common ancestor or stock—opposed to *lineal:* see CONSANGUINITY: SUCCESSION. COLLAT′ERALLY, ad. *-lĭ*. COLLAT′ERALNESS, n. COLLATERAL SECURITY, an additional and separate security for the performance of an obligation, or the implement of a bond or covenant.

COLLA′TION, in the Law of England: the act of bringing a portion advanced by the father to a son or daughter into *hotch-pot* (q.v.), in order that the beneficiary may have an equal share of his personal estate at his death.

COLLE, *kŏl′lā:* town of Italy, on the Elsa, about 22 m. s.s.w. of Florence. A steep ridge separates the town into two portions, the lower of which is occupied chiefly by manufactories. C. has a cathedral and castle, and its paper manufacture is extensive. Wine, olive-oil, and silk are produced in the environs. Pop. 5,000.

COLLEAGUE, n. *kŏl′lēg* [F. *collègue*—from L. *collēga*, a partner in office: Icel. *lag*, society: It. *collega*]: a partner or associate in the same office or employment—never used of partners in trade or manufactures: V. *kŏl-lēg′*, to join or unite with in the same office or for the same purpose. COLLEAGU′ING, imp. COLLEAGUED′, pp. *-lēgd′*. COL′-LEAGUESHIP, n.

COLLECT, n. *kŏl′lĕkt* [mid. L. *collecta*, contributions in money, an assembly for prayer—from L. *collec′tus*, gathered

together—from *con*, together; *lectus*, gathered, selected. OF. *collecter*, to collect money—from mid. L. *collectārĕ*, to collect money]: a prayer gathered out of Scripture; a short prayer adapted for a particular occasion: V. *kŏl-lĕkt'*, to gather separate persons or things into one body or place; to gather money or revenue; to accumulate, as snow or water; to assemble or bring together; to gain by observation or research; to infer as a consequence. COLLECT'ING, imp. COLLEC'TED, pp.: ADJ. cool; self-possessed. COLLEC'TIBLE, a. *-lĕk'tĭ-bl*, that may be gathered. COLLEC'TION, n. *-shŭn*, the act of gathering; an assemblage or crowd; contributions in money; a sum gathered for a charitable purpose; a book of extracts; an accumulated store of objects of interest; a selection of works in painting or sculpture not large enough to form a gallery; a selection of prints without regard to number. COLLEC'TEDLY, ad. *-lĭ*. COLLEC'TEDNESS n. a composed state of mind; recovery from surprise. COLLEC'TIVE, a. *-tĭv*, gathered into a mass, sum, or body; aggregate; expressing a number of multitude united as one. COLLEC'TIVELY, ad. *-lĭ*, in a general mass or body; not individually; in the aggregate. COLLEC'TIVENESS, n. COLLEC'TOR, n. *-lĕk'tẽr*, one who collects or gathers; a tax-gatherer; a high official under the E. India Company. COLLEC'TORSHIP, n. the office: also COLLEC'TORATE, n. *-āt*. TO COLLECT ONE'S SELF, to recover from surprise or embarrassment.—SYN. of 'collect v.': to gather; muster; assemble; aggregate; amass; infer; deduce;—of 'collection': assembly; assemblage; group; meeting; company; crowd; heap; mass; compilation.

COL'LECT: name of uncertain origin, given to certain short prayers in different church liturgies. It is from the Latin *colligere*, as some ritualists think, because of the comprehensive brevity of such prayers, the matter of the epistle and gospel, e.g., being gathered up, or *collected*, into the collect for the day, as appears in the Episcopal Book of Common Prayer. Others, with more probability, ascribe to the name an origin from an ancient practice of the chief minister collecting into a single brief prayer at the end of the service the previous devotions of the people; accordingly, one of the service-books of the anc. Catholic Church was called *Collectarium*, as containing such prayers. Of the collects used in the liturgy of the Church of England, some are taken from the old Roman Missal, and were probably the composition of St. Jerome; others are of more ancient and primitive times, and a few were composed at the Reformation. They begin with commemorating some attribute of God, or pleading some infirmity or necessity of man, and end with a simple petition based thereupon. The practical teaching or pervading spirit of a church may to a great extent be seen in its collects. For every Sunday, there is a proper collect, with corresponding epistle and gospel; and this collect stands for every day in the following week, except in the case of festivals or fasts and their eves or vigils, which have collects of their own.

COLLECTANEA, n. plu. *kŏl'lĕk-tā'nĕ-ă* [L., things gath-

ered together—from *con, lectus*, gathered]: a collection of selections from various authors. COLLECTA'NEOUS, a.-*nĕ-ŭs*, consisting of selections gathered from a variety of sources; gathered.

COLLECTIONS AT CHURCHES, in Scotland: contributions gathered at all churches—either at the church-doors before the service, or in the church after it—were, till a comparatively recent period, the principal fund for the support of the poor. By the Poor-law Act (8 and 9 Vict., c. 83) it is enacted (s. 54) that in all parishes in which it has been agreed that an assessment shall be levied for the relief of the poor, all moneys arising from the ordinary church collections shall in the future belong to, and be at the disposal of, the kirk-session, under certain provisions. The collections at dissenting meeting-houses, under which denomination Episcopal chapels are included, are entirely at the disposal of the congregations.

In England there are no regularly imposed collections at churches as in Scotland. The alms collected during the offertory in churches, and in chapels, are free-will gifts for beneficence, or for the purposes of the congregation. See OFFERTORY.

COLLECTIVISM, n. *kŏl-lĕk'tĭv-izm*, [Eng. *collective*, and term. *-ism*]: a plan of social organization according to which the whole people as a social and political organism and not as individuals, holds centralized in itself all directive, social, and industrial functions, and in particular controls the means of production, viz., land and machinery; thus C. is the opposite of the existing order of individualism in property and in all productive enterprise. As C. does not deny the right of property except in land and in such means of production as are monopolizable, it is in effect synonymous with socialism (q.v.). See also COMMUNISM: FOURIERISM.

COLLEGE, *kŏl-lĕj* [F. *collége*, a college, a high school—from L. *collēgĭŭm*, persons united by the same calling—from *con*, together; *lego*, I choose: It. *collegio*]: an assemblage or society of men possessing certain powers and rights, engaged in some common employment or pursuit; a number of persons engaged in study, as College of Surgeons; the building where they meet or reside; a university. COLLE'GIAN, n. *-lē'jĭ-ăn*, a member of, or student in a college. COLLE'GIATE, a. *-āt*, containing a college; instituted after the manner of a college. COLLEGIATE CHURCH in England, a church built and endowed for a corporate body, having dean, canons, prebends, etc., like a cathedral, but not a bishop's see; so called from having a college or chapter, consisting of a dean and canons, attached. The service is, or should be the same as in a cathedral. They are under the jurisdiction of the bishop of the diocese in which they are situated, and he exercises visitorial powers over them. Those remaining in England are Westminster, Windsor, Wolverhampton, Heytesbury, Middleham; also Brecon in Wales, and Galway in Ireland. Ripon, Manchester and Southwell have been constituted

the cathedrals of new dioceses. Some churches called collegiate (as Beverley) have no chapters. In Scotland, collegiate church denotes a church with two or more ministers of equal rank. In the United States, it denotes a group or college of two or more congregations united as one church organization, with ministers equal in station and functions.

COL'LEGE: in old Roman signification, a C. signified any association of persons for a specific purpose: in many respects it was synonymous with *corpus*, a body or collection of members, a corporation—with *universitas*, a whole as contrasted with its parts— and with *societas*, a company or partnership, as opposed to all the members of which it was composed. A. Roman C. had a common chest, and it could sue and be sued in the name of its manager (actor or syndicus), like a modern corporation. It required also to be incorporated by some sort of public authority, springing either from the senate or the emperor. A C. could not consist of fewer than three persons, according to the well-known maxim, 'three make a college' (Dig. 50, tit. 16 l. 85). Some of these colleges were for purely mercantile purposes, but there were others with religious objects, such as the *Collegia Pontificum Augurum*, etc., which thus made a sort of approach to a C. in the modern sense. In modern times, a C. is an incorporation, company, or society of persons, joined together generally for literary or scientific purposes, and frequently possessing peculiar or exclusive privileges: see PHYSICIANS, COLLEGE OF: SURGEONS, COLLEGE OF. The most familiar application of the term is to a society of persons engaged in the pursuits of literature and science and in the promotion of learning, including both professors and students. In England a C. is a sub-corporation, i. e., a member of the body known as the university. The university confers degrees, and institutes and carries out the necessary examinations. Each C. is regulated by laws framed by its founder, with such modifications as have been deemed necessary to introduce from time to time. According to these laws, the head (variously styled master, principal, warden, rector, etc.) is either chosen by the fellows from their own number, or appointed by the crown or other authority. The fellows are graduates who receive special emoluments for a term of years, and are generally elected to the position on account of special scholarship; while the scholars, admitted as undergraduates, are either chosen from particular localities, schools, etc., or elected according to merit after free competition. There are also a number of ordinary students, all as a rule occupying chambers belonging to the C. The undergraduates receive their instruction chiefly from tutors, who are generally resident fellows. In Scotland the distinction between the C. as the member and the university as the body has been lost sight of, and we consequently hear of the one and the other indiscriminately granting degrees, a function which in the English and in the original European view of the matter belonged

exclusively to the university: see DEGREE. Where there is but one C. in a university, as is the case in all the universities of Scotland, the two bodies are of course identical, though the functions which they perform are different. In Germany there are no colleges in the English sense, and though the universities in that country perform precisely the same functions as in Scotland the verbal confusion between the C. and the university is avoided by the latter performing the functions of both in its own name, as two separate parts of its proper duties. In France the C. is a school for secondary education, corresponding to the gymnasium (q. v.) of Germany; all the colleges are placed under the university of France, which also is an institution differing widely from the English university. See UNIVERSITY OF FRANCE: COLLEGE OF FRANCE.

Colleges in the U. S.—In the U. S. the C. and the university are not clearly differentiated; in general, the C. proper offers only the four years' course leading to a bachelor's degree, and the university includes within its organization graduate schools, professional and technical schools in addition to the C. But this distinction is not always strictly preserved, and some institutions bearing the title of university are in reality little more than colleges. In American colleges up to the close of the Civil War with a few unimportant exceptions the four-year course consisted of prescribed studies, including English literature and rhetoric, Latin, Greek, mathematics, natural philosophy, chemistry, the elements of deductive logic, moral philosophy, and political economy, and often a little psychology and metaphysics. Perhaps some ancient or general history was added. French and German were sometimes scantily taught. At graduation the student received the degree of bachelor of arts, and then entered some professional school, or went into business or into teaching in the primary or secondary schools. At the present time things are very different. The old four-year course, consisting entirely of a single set of prescribed studies leading to the one degree of bachelor of arts, has grown and branched in many ways; it no longer leads solely to the degree of bachelor of arts, and this old degree has been modified. With the founding of schools of science, aiming to give a modern form of liberal education based mainly on the physical and natural sciences, the degree of bachelor of science came into use. Then intermediate courses were constituted, resting on Latin, the modern languages, history, philosophy, mathematics, and science, and thus the degree of bachelor of letters or bachelor of philosophy came into use. Sometimes the various courses in engineering were made four-year undergraduate courses with their degrees virtually rated as bachelor's degrees. Still other degrees of lesser importance came into vogue here and there to mark the completion of a four-year college course. Compared with the old course such courses lack definiteness of structure; and there was also a tendency to confuse the liberal and the

technical courses, and by the attractiveness of the latter to lessen the strength of the liberal studies. However, the present drift of opinion and action in colleges which offer more than one bachelor's degree is more reassuring than it was. There is a noticeable and growing tendency to draw a sharp line between liberal and technical education and to retain undergraduate college education in liberal studies as the best foundation for technical studies, thus elevating the latter to a professional dignity comparable with law, medicine, and divinity.

Another important development in American colleges has been the introduction of the elective system. Owing largely to the better preparation for college in the secondary schools, the studies which made up the curriculum leading to the old bachelor of arts degree are now being completed before the end, sometimes by the middle, of the college course. As this fact forced itself upon the older and stronger colleges, experiments were made in granting a limited amount of elective freedom to students in the latter part of their course; first in the senior year and then in the junior year, until in come instances the whole four-year course is now elective. In some colleges a student may obtain the bachelor of arts degree without studying any science, or he may omit his classics, or he may know nothing of philosophy. To-day the problem of the relation of prescribed to elective studies is a question of constant interest and perpetual readjustment. The return to the old prescribed course has become practically impossible. There are some educators who advocate making the undergraduate course entirely, or almost entirely, elective. The danger of this policy is chiefly that it leads to incoherency and discontinuity in the choice of studies; those who oppose it argue that the freshman in the American college is not prepared to use rightly such academic freedom as belongs more properly to university education. One modification of the complete elective system, therefore, is to make the first part of the course prescribed, and to introduce electives at about the middle of the course. These electives are organized and related in a system and connected with the underlying system of prescribed studies. Another modification known as the 'group' system, prescribes groups of cognate studies, the student being allowed to choose the group in the field that he may prefer; the advantage claimed for this mode is that it allows the student to choose the field of study he likes, and safeguards him against incoherency by requiring him to pursue a group of well-related courses in that field. One or the other of these modifications of the elective system is found in almost every American college, and sometimes a combination of the two. In 1906, there were in the U. S. 453 colleges and universities with 97,545 students in college courses, of whom 25,045 were women.

Collegiate Instruction for Women.—There are three types of collegiate education for women in the U. S.—coeducation, separate education, and co-ordination. Under

the first form, men and women are educated together under identical conditions; under the second, women are educated by colleges founded and administered for them as women; under the third, there are established in the same university two colleges, one for men and one women. The third form is subject, however, to considerable varieties in administration. The first college founded for both men and women was Oberlin, Ohio, three women receiving college degrees in 1841. The next coeducational college, Antioch, was not established till nearly 20 years later, also in an Ohio town. The beginning thus made advanced rapidly. Its chief field of growth lay in the universities founded by the various States. In 1856 Iowa, in 1866 Kansas, in 1868 Minnesota, in 1871 Nebraska, founded universities for both men and women. The University of Indiana, founded in 1820, was in 1868 opened to women. The University of Michigan, of Illinois, of California, of Missouri, were open to women in 1870, and the Ohio State University three years after. In 1874 Wisconsin adopted complete coeducation. At the present time every State university, excepting Virginia, Georgia, and Louisiana, is open to women; and nearly 9-10 of all American colleges are coeducational. The older parts of the country approached the question of the education of women through the establishment of new colleges for them. It was easier to found colleges for women than to adjust colleges already organized for men to the admission of women. Yet Middlebury, Colby, and other colleges were opened to them; and Boston University, Bates College, and Cornell University were coeducational either at the time of their establishment or soon after. The first institution for the higher education of women alone to be fully endowed and equipped as a college was Vassar College opened in 1865, though Mount Holyoke, now a college, was established as a seminary in 1837. Wellesley College was opened in 1875; Smith in 1875, and Bryn Mawr in 1885. In the co-ordinate type of woman's college, a college for women is established as an annex to, or an institution parallel with, a college for men. The more conspicuous of these colleges are Radcliffe, affiliated with Harvard; Barnard, affiliated with Columbia; the Woman's College of Brown University, the College for Women of Western Reserve University of Cleveland, and the H. Sophia Newcomb College, affiliated with Tulane University. The intramural administration of these colleges differs from each other. In Radcliffe, Barnard, and Brown the larger part of the instruction is given by members of the faculty of the older college for men. In the College for Women of Western Reserve University a distinct faculty is established which is co-ordinate with the faculty of the college for men—Adelbert—of the same university. Each of these three types of college has apparently a permanent place in American educational life, though coeducation is by far the most common type.

COLLEGE AND UNIVERSITY SETTLEMENTS: Institutions organized by college students and graduates in the poor districts of the cities, where they live in close contact with the people of the district and work for the betterment of the conditions of life. The movement originated in England, largely through the works of Arnold Toynbee an Oxford man, who spent one or two of his summer vacations among the poor of East London, and who later worked and lectured among the workingmen in a spirit of democratic sympathy and helpfulness. His life was a short one, but he inspired others to carry on the work; and in 1883 the Rev. S. A. Barnett of St. Jude's parish, London, established a settlement of Oxford men in the Whitechapel district; at first they occupied a vacant public-house, but in 1885 Toynbee Hall was built for the work of the settlement. Associated with the residents of the Hall, are men and women of the city who give aid in the work, as in teaching. Toynbee Hall is noted for its educational work in lectures, classes, laboratories, etc.; and conducts many conferences on subjects connected with the welfare of the district, such as housing and organized labor. The residents are also prominent in reform work of all kinds. In 1885 Oxford House was established at Bethnal Green, London, with more distinctive religious features and controlling various clubs. Mansfield House, in Canning Town, is also prominent in religious work, especially through its Sunday afternoon meetings for men; and it also conducts a lodging house for dockers. There are at present about 40 such settlements in England, two of which are controlled by college women, the Women's University Settlement, Southwark, London, founded 1887, and the Cheltenham Ladies' College Settlement, Mayfield House, Bethnal Green, founded 1889.

The first settlement in the United States was the 'Neighborhood Guild' founded by Dr. Stanton Coit in New York. This became the University Settlement in 1891, and ranks as one of the largest and most important in the country. This Settlement is noted for its social work, its clubs and settlement meetings, rather than for its educational work. Several trade unions meet in its building. At present the settlements in the United States number over 80.

Of the more important may be mentioned, the College Settlement and Nurses' Settlements, New York, the latter of which controls several small houses in which the residents live; the Andover House, Dorothy Hall, and the Women's College Settlement, in Boston; a Women's College Settlement in Philadelphia; and Hull House, Chicago. The great value of the movement is undoubtedly in the personal contact of the educated and cultured with the less fortunate and in the spirit of brotherhood and democracy that animates them. The work is given a wide practical scope as well, through the attention paid to sanitary measures, diet kitchens, educational classes and

lectures, kindergartens, day nurseries, clubs, saving funds, gymnasiums, libraries, concerts, excursions, and co-operative boarding.

Hull House has the most complete scheme of activities in all the lines mentioned, including much manual training in printing, book-binding, pottery-making, wood and metal working, etc. In addition to this the residents of the settlements frequently carry on important sociological investigations which are often the means of bringing about reforms, and they also take active part in public and reform work

COLLEGE OF THE CITY OF NEW YORK, THE, originally entitled the Free Academy, was established in 1848, for boys, by the board of education of New York City. In 1854 the legislature of the State passed a law endowing the school with collegiate powers and privileges; and in 1866 the name was changed to that of 'The College of the City of New York.' The institute possesses all the powers and privileges of a college pursuant to the revised statutes of the State of New York relative to colleges, visitation of regents of the university, granting of degrees, etc. Prior to 1882 one condition for admission was attendance for at least one year at the public schools of the city. In the year 1882 the legislature repealed so much of the statute as related to this condition, and now the college is open to all young men of the city, of proper age and preparation. Instruction, the use of text-books and apparatus are free. The courses of study extend over seven years, three academic or preparatory and four collegiate years. The number of students in attendance in 1906, 3,905; number of graduates since foundation, 2,911; volumes in library, 37,674. Purchases of books are made with the income of the Seth M. Grosvenor fund of $30,000 and the Ephraim Holbrook fund of $5,000. In 1903 plans were perfected for the removal of the institution from 23d Street and Lexington Avenue to Washington Heights, in the upper part of the city. The new buildings eclipse any in the United States, if not in the world. The formal removal took place in 1907.

COLLEGE DE FRANCE: originally a *Collége de Trois Langues* merely, founded by Francis I., 1530, is now a very important educational institution giving instruction over a very wide field of literature, history, and science. It is independent of the University of France (q.v.), is directly under the minister of public instruction, and is supported by the govt. As in the Sorbonne (q.v.), the lectures are gratuitous; and for the most part are designed to attract auditors older than ordinary university students. The college comprises two faculties, one literary, one scientific; each has about 20 professors. Among the professors have been some of the most distinguished scholars and scientists in France, such as Renan, Laboulaye, Gaston de Paris, in the literary department; and Brown-Séquard in the science division. Among the subjects discussed are political economy, Assyrian and Egyptian archeology, Arabic, Slavonic

literature, French literature, physiology, anatomy, and embryology.

COLLEGE FRATERNITIES, or GREEK LETTER SOCIETIES: Societies organized for literary and social purposes in nearly all the colleges and universities of the United States, and composed of both alumni and students. Some (called local) are confined to single colleges; others (general fraternities) are national in their scope with branches, known as 'chapters,' at several institutions. No society has more than one chapter in any one college. Nearly all are secret societies, with private hand-grips, and secret meetings, constitutions and mottoes,—but no elaborated ritual. The Greek letter names are initials of their mottoes; and as a rule the chapters are also distinguished by Greek letters. There are three types of badges, the name badge, the monogram badge, and the symbol badge. New members are elected by the resident members of each chapter. It has become the custom in many colleges for the students of each fraternity to live together in their 'chapter' house during the college course; these houses are sometimes owned, and sometimes rented by the fraternity. Fraternities, as a rule, have the approval of the college authorities, and naturally so, as many college presidents and professors are themselves fraternity men, and appreciate the advantages of such societies. The older fraternities publish costly catalogues, maintain club houses in the principal cities and have a large number of distinguished members.

The first Greek letter society organized in the United States is Phi Beta Kappa (Φ B K) founded in 1776 at William and Mary College. The society has now 63 chapters and more than 12,000 members; the badge is a golden rectangular key. The first society, Φ B K, cannot be considered the type of college fraternities, as it differs from them in two important particulars. In the first place, it is purely a graduate society, members being admitted only at the close of the Senior year, while in other fraternities members are elected from the under graduates, usually in the Freshman year; and in the second place, membership in Φ B K is based upon scholarship, most chapters admitting only the first third of each class. Two other societies resemble Φ B K in these respects; these are Tau Beta Pi (T B Π) organized at Lehigh University in 1885 and Sigma Psi (ΣΨ) organized at Cornell in 1886. These societies are founded for the benefit of technical and scientific students whom Φ B K refused to admit to membership. Since 1875 women have also been admitted to Φ B K. Of the more typical college fraternities, the earliest were founded at Union College Kappa Alpha (K A) in 1825, and Sigma Phi (ΣΦ) and Delta Phi (ΔΦ) in 1827; next in order came Alpha Delta Phi (ΑΔΦ) founded at Hamilton College in 1832, and Psi Upsilon (ΨΥ), Union College, 1833. Delta Upsilon (ΔΥ) organized at Williams College 1834 is an

open, non-secret society. Of other fraternities the following have a membership of more than 10,000 (1907): Beta Theta Pi (ΒΘΠ), Miami, 1839; Delta Kappa Epsilon (ΔΚΕ), Yale, 1844; Phi Delta Theta (ΦΔΘ), Miami, 1848; Phi Gamma Delta (ΦΓΔ), Jefferson, 1848; Phi Kappa Psi (ΦΚΨ), Jefferson, 1852; and Sigma Alpha Epsilon (ΣΑΕ), University of Alabama, 1856. There were in all in 1907, 32 general fraternities for men with a membership of nearly 200,000. The first general Greek letter society for women was organized in 1867, Pi Beta Phi (ΠΒΦ), at Monmouth College; next came Kappa Alpha Theta (ΚΑΘ), organized at De Pauw University in 1870, and Kappa Kappa Gamma (ΚΚΓ) at Monmouth in the same year. In 1907 there were 17 of these societies for women, of which the largest are the three already mentioned and Alpha Chi Omega (ΑΧΩ), De Pauw University, 1885, Alpha Phi (ΑΦ), Syracuse University, 1872, Delta Delta Delta (ΔΔΔ), Boston University, 1888; Delta Gamma (ΔΓ), University of Mississippi, 1872; and Gamma Phi Beta (ΓΦΒ), Syracuse, 1874.

Of local or one college fraternities there were in 1907, 75 for men and 50 for women. Some of the men's societies date back as far as 1825; Kappa Kappa Kappa (K K K), Dartmouth, 1842, and Phi Nu Theta (ΦΝΘ), Wesleyan, 1837, are types. Phi Delta Phi (ϕΔϕ) and Delta Chi (ΔΧ) are law-school fraternities; Nu Sigma Nu (ΝΣΝ) is a society of medical students.

COLLEGES, LAND GRANT: colleges established and maintained in whole or in part by the Land Grant Act of 1862, July 2. Justin S. Morrill, a representative from Vermont, introduced in congress the first bill asking that grants of government land be donated for the purpose of aiding in the education of the people, in scientific and technical subjects. This bill, introduced in the lower house 1857, Dec. 14, authorized the establishment of colleges of agriculture and mechanical arts in all states, and provided for the support of said colleges, 20,000 acres of land for each senator and representative. The bill passed both houses but was vetoed by President Buchanan. In 1861, December, Mr. Morrill introduced a new bill, bestowing 30,000 acres of land for each member of congress for the establishment and maintenance of industrial colleges. The bill passed both houses and was approved by President Lincoln 1862, July 2.

In 1889 Mr. Morrill introduced another bill in congress, providing that there shall be appropriated annually to each state out of the funds arising from the sale of public lands, the sum of $15,000 for the year ending 1890, June 30, and an annual increase by the additional sum of $1,000 to such appropriation for 10 years thereafter until the appropriation shall become $25,000, at which figure it shall remain fixed. The bill passed both houses and was approved by President Harrison 1890, Aug. 30.

COLLEGIANTS, *kŏl-lē'jĭ-ants:* sect formed in Holland 1619, which called its assemblies colleges; also named

Rhinsbergers, from their meeting twice a year for communion at Rhinsberg, near Leyden. They aimed at a return to primitive Christian liberty, disowned human creeds and a professional ministry, and admitted any who acknowledged the divine authority of the Scriptures, and endeavored to live after their teachings. They baptized by immersion, laid no stress on any form of church govt., and conducted their meetings by the voluntary participation of those attending. They bore some resemblance to the modern Plymouth Brethren.

COLLEMBOLA, n. *kŏl-lĕm′bō-lă* [Gr. *kolla*, glue; *embŏlos*, a sharp-pointed projection]: an order of apterous insects furnished with an adhesive ventral process.

COLLENCHYMA, n. *kŏl-lĕn′kĭ-mă* [Gr. *kolla*, glue, *eng′-chuma*, a tissue]: in *bot.*, the substance lying between and uniting cells; a kind of cellular tissue with thickened and swollen walls.

COLLES, *kŏl′lis*, Christopher: abt. 1738-1821; b. Ireland: engineer. He was befriended and educated by Bp. Pococke, after whose death, 1765, he came to America, and lectured at Philadelphia on pneumatics 1772, and in New York on inland lock-navigation 1773, and on gunnery 1775. He proposed to build a reservoir for New York 1774, and to bring in water by pipes; was instructor in artillery 1775-77; surveyed the Mohawk to Wood creek, and was the first to suggest a canal from Lake Ontario to the Hudson, memorializing the legislature on this subject 1784, and issuing a pamphlet 1808 on inland navigation. He described the roads of N. Y. 1789, and is said to have constructed the first American steam-engine. Colles had the esteem of Hamilton and Jefferson, but his many useful labors barely supplied the means of subsistence. He made bandboxes, mouse-traps, paper hangings, proof glasses, and astronomical calculations, tested the specific gravity of imported liquors, constructed and worked the telegraph on Castle Clinton in the war of 1812, and was in his later days supt. of the Acad. of Fine Arts. He lived in New York from 1796, and died there.

COLLET, n. *kŏl′lĕt* [F. *collet*, a collar—from F. *col*, the neck—from L. *collum*, the neck]: the part of a ring in which a precious stone is set; the neck or part of a plant that lies between the root and the stem.

COLLETERS, n. plu. *kŏl-lē′tĕrz* [Gr. *kollētos*, glued or cemented together—from *kollē*, glue]: in *bot.*, glandular hairs on the leaves of a bud producing 'blastocolla.'

COLLETIC, a. *kŏl-lĕt′ĭk* [Gr. *kolletĭkos*, sticky, gluey—from Gr. *kollē*, glue]: of the nature of glue; gluey.

COLLEY, n. *kŏl′lĭ:* a shepherd's dog: see Colly.

COLLIDE, v. *kŏl-līd′* [L. *collīdĕrĕ*, to dash together—from *con*, together; *lædĕrĕ*, to strike forcibly: It. *collidere*]: to strike or dash against each other. Colli′ding, imp.: N. a collision. Colli′ded, pp. Collision, n. *kŏl-lĭzh′ŭn*, which see.

COLLIER, n. *kŏl'yėr* [OE. *col*, coal, and postfix *er* (see COAL)]: a coal-miner; a vessel used to transport coal. COLLIERY, n. *kŏl'yėr-ĭ*, a place where coal is mined.

COLLIER, *kŏl'yėr*, ARTHUR, a clergyman and philosopher contemporary with Bishop Berkeley: b. 1680; d. 1732. Like the latter he undertook to demonstrate the impossibility of an external world. His most celebrated work is entitled *Clavis Universalis.*

COLLIER, *kŏl'yėr*, JEREMY: 1650, Sep. 23—1726, Apr. 26; b. Cambridgeshire, Eng.: noted nonjuring clergyman. He went to Cambridge 1669, and took his degree M.A. 1676. At the revolution 1688 he plunged into the stormy waters of controversy, his foeman being Burnet, afterward Bp. of Salisbury. For a publication of his at this time, entitled *The Desertion Discussed,* which gave offense to the government of William, he was sent to Newgate, where he remained several months. On his release, he rushed anew into the wars of party, and distinguished himself therein by the publication of several controversial works. Suspected of being a partisan of the Stuarts, he was again arrested 1692, and imprisoned for a short time in the King's bench. From this period his life was a scene of perpetual literary strife, government being the principal object of his attack. He died in London. Collier wrote many books, including the *Ecclesiastical History of Great Britain;* but the work by which he is best known, is his *Short View of the Immorality and Profaneness of the English Stage,* 1698. Congreve and Farquhar came to the rescue of their craft, to the great delight of Collier, who was never happier than when wielding the satirical whip, and who had no objection to encounter a couple of opponents at a time. The combat lasted 10 years, and at the close, Collier remained master of the field. His strictures on the stage were needed at the time, and his writing materially aided its subsequent purification.

COLLIER, J. PAYNE: 1789-1883, Sep. 17; b. London: Shakespearian critic and commentator. He become a parliamentary reporter on the staff of the *Morning Chronicle* and afterward edited the *Evening Chronicle.* It was in the pages of the former that his first essays in the field of Elizabethan literature appeared. In 1820 he published *The Poetical Decameron;* 1825-27 a new edition of Dodsley's *Old Plays;* and in 1831 his best work, a *History of English Dramatic Poetry to the Time of Shakespeare, and Annals of the Stage to the Restoration.* This opened to him two valuable sources of information, the libraries of Lord Francis Egerton and the Duke of Devonshire, the latter appointing him his librarian. His next work was a *Bibliographical and Critical Catalogue.* From 1835-39 he published *New Facts Regarding the Life and Works of Shakespeare;* followed by an edition of Shakespeare. His next work was the famous volume, *Notes and Emendations to the Text of Shakespeare's Plays, from early manuscript Corrections in a Copy of the Folio of* 1632, *in the Possession of J. P. Collier.* This publication excited great commotion in the literary

world; opinion was divided, and the *Emendations* were furiously applauded or furiously assailed. It was in time generally admitted that many of them were just corrections of typographical errors; that many, in cases where the author's meaning was doubtful, displayed very remarkable ingenuity; but that others darkened texts which, save to a commentator, were transparent enough. Later, it was even alleged by some that Collier had himself written the marginal emendations in a feigned hand. In 1865 appeared his *Bibliographical Account of Rare Books*. In 1866 he commenced a series of reprints of early English poets and pamphleteers. His later works include his *Book of Roxburghe Ballads, Shakespeare's Library, Extracts from the Registers of the Stationers' Company, Memoirs of Actors of Plays of Shakespeare*, and *Autobiographical Recollections*. He died at Maidenhead.

COLLIGATE, v. *kŏl'lĭ-gāt* [L. *colligātus*, bound together —from *con*, together; *ligo*, I bind]: to bind or tie together. Col'ligating, imp. Col'ligated, pp. Col'liga'tion, n. *-gā'shŭn*, act of binding together; that process in inductive philosophy by which a certain number of facts are brought together for generalization.

COLLIGATION, in psychology: a temporal or spatial mode or pattern of sensations; the various color sensations involved in the perception of a picture, *e.g.*, stand in colligation. Colligation is distinguished from *fusion* (q. v.) (1) by the temporal and spatial differences in the colligated sensations and (2) by the relative independence of the latter. In logic, the conjoining of particular facts by means of a general proposition is termed the *colligation of facts* (Whewell).

COLLIMATION, n. *kŏl'lĭ-mā'shŭn* [L. *collinĕārĕ*, to direct in a straight line—from *con*, together; *linĕă*, a line: It. *collimare*, too aim]: the line of sight in the direction of any object; in the *telescope*, the line of sight passing through the centre of the object glass and the centre of the cross wires placed in the focus. Col'lima'tor, n. *-tĕr*, instrument for fixing a definite direction in space, by the emergence of parallel rays from a material object placed in the focus of a fixed lens. The principle is believed to have been first employed by David Rittenhouse, American astronomer and mathematician, 1785; and the instrument was invented by Capt. Kater. It is in two forms. The horizontal collimation is a small telescope fastened to a plate of iron which floats on a quantity of mercury in a basin, and has a wire crossing its focus. The vertical collimation is a receptacle of mercury to the surface of which a telescope is directed at the point where a reflection of the wire crossing the focus is thrown on the mercury. In both forms these cross wires are illumined by a lamp so placed that its rays are parallel. The rays being brought to a focus by the object glass of any other telescope will produce the likeness of any celestial object in their direction. A reflected image of the cross wires is thus obtained, indicating accurately

the vertical position of the telescope. The place of the horizontal or zenith point on a vertical scale is thereby quickly determined without the use of a plumb-line or a spirit-level.

COLLIN, or KOLIN, *kō-lēn′:* town of Bohemia, on the left bank of the Elbe, about 39 m. e.s.e. of Prague. It has manufactures of sugar, manure, and oil. In the vicinity was fought, 1757, the famous battle in which Frederick the Great was defeated by the allied Austrian and Saxon armies under Marshal Daun. Pop. 11,332.

COLLINGWOOD, *kŏl′ĭng-wûd:* in Australia; n.e. suburb of the city of Melbourne. Pop. abt. 20,000.

COLLINGWOOD: Canada, port of entry and county-seat of Simcoe county, Ontario; on Georgian Bay, Lake Huron, and the Grand Trunk Ry., 95 m. n.w. of Toronto. It is an important commercial port, the terminus of steamship lines to Owen Sound, Sault Ste. Marie, Fort William, Duluth, and other points of the great lakes, and has a large trade in lumber, grain, produce, iron ore, etc. It is the seat of a United States consulate. It has tanneries, breweries, flour mills, sash, door, blind and pump factories; schools, churches, hotels, banks and weekly newspapers; and is lighted by gas and electricity. Pop. (1901) 5,755.

COLLINGWOOD, CUTHBERT, Admiral Lord: 1750, Sep. 26—1810, Mar. 7; b. Newcastle-upon-Tyne. Sent to sea as a midshipman at the age of eleven, his life thenceforth, with the exception of some half-dozen years, was spent wholly on board ship. He was an intimate friend of Nelson, whom he followed up the ladder of promotion step by step, until Nelson's death left the topmost round vacant for himself. Among the great naval victories in which Collingwood bore a prominent part, were those of Lord Howe off Brest 1794, June; of Lord Jervis off Cape St. Vincent 1797; and of Trafalgar 1805, where he held the second command. In the last-named engagement, his ship was the first to break through the line of the combined French and Spanish fleets; and after Nelson had received his death-wound, he assumed the chief direction, and completed gloriously the triumph so daringly commenced. A peerage was the reward for his gallant conduct. After several years' service in the Mediterranean, Collingwood died at sea. He was a thorough seaman, unsurpassed by any officer in the navy, at once brave and cool, firm and mild in command.

COLLINS, *kŏl′ĭnz,* ANTHONY: 1676–1729, Dec.; b. Heston, near Hounslow, Middlesex, England: free-thinking writer on religious questions. He studied at Eton, and afterward at King's College, Cambridge. In 1707 he published his *Essay concerning the Use of Human Reason;* and 1709 his *Priestcraft in Perfection*, etc., which drew strong and severe replies from the churchmen of that time. The controversy excited by this last work induced Collins to write his *Historical and Critical Essay on the*

Thirty-nine Articles. His next work was a *Vindication of the Divine Attributes,* in reply to the Abp. of Dublin, who asserted the compatibility of divine predestination and human freedom. Collins was a philosophical necessitarian, and afterward advocated his deistic opinions more fully in his *Philosophieal Inquiry coneerning Liberty and Necessity* (1715). In 1711 he went to Holland, where he made the friendship of Le Clerc and other eminent *literati.* On his return to England he published his *Diseourse on Free Thinking,* best known and most important of his works. In 1718 he was made treasurer for the county of Essex; and in 1724 appeared his *Grounds and Reasons of the Christian Religion,* which gave occasion to no less than 35 replies. Two years later he defended himself in his *Seheme of a Literal Propheey,* and 1727 published his last work, a reply to Dr. Roger's *Eight Sermons on the Necessity of Revelation and the Truth of Christianity.* He was a friend and correspondent of Locke, who praised 'his love of the truth for the truth's sake.' He had good repute for integrity and benevolence.

COLLINS, Joseph William, American ichthyologist: b. Isleboro, Maine, 1839, Aug. 8; d. 1904. His boyhood was spent on fishing schooners and he was entirely self-taught. He made the statistical inquiry into New England fisheries for the 10th United States census 1879–80, and for the United States Fish Commission, with which he remained connected until 1892. He was an official of the International Fisheries Expositions at Berlin 1880; London 1883; chief of the fish and fisheries department at the Chicago World's Fair 1893; and organized the section of Naval Architecture in the United States National Museum. He was a contributor to the *Century Dictionary;* edited the *Fishing Gazette* 1893–4; and wrote many papers and reports on his specialty.

COLLINS, Mortimer, English novelist and poet: b. Plymouth, 1827, June 29; d. Knowl Hill, Berkshire, 1876, July 28. He was for a time mathematical master in Queen Elizabeth's College, Guernsey, but resigned in 1856 in order to devote himself wholly to literature. His works include examples of many different styles, ranging from playful verses to political articles. The chief are the books of verse entitled *Summer Songs* (1860); *Idyls and Rhymes* (1865); and *The Inn of Strange Meetings and Other Poems* (1871); and the novels, *Sweet Anne Page* (1868), partly autobiographical; *The Vivian Romance* (1870); *The Marquis and Merchant* (1871); *Two Plunges for a Pearl* (1872); *Miranda, a Midsummer Madness* (1873) *Mr. Carington* (1873); *Transmigration* (1874); *Franees* (1874); *Sweet and Twenty* (1875); *From Midnight to Midnight* (1875); *Fight with Fortune* (1876); *The Village Comedy* (1876); and *You Play Me False* (1878); in some of which his second wife Frances Cotton, collaborated. His most successful book was a series of essays, *The Secret of Long Life* (1871), published anonymously.

COLLINS, Patrick Andrew, American politician: b.

Fermoy, Ireland, 1844, March 12; d. Hot Springs, Va., 1905, Sept. 14. He came to the United States when four years old, went to the public schools until he was 16, became an upholsterer, saved money, and graduated at Harvard law school in 1871. He served in the Massachusetts legislature from 1869 to 1871, and was a delegate to the Democratic national conventions of 1876, 1880, 1884, 1888, and 1892. From 1882 to 1888 he sat in congress and from 1893 to 1897 was consul-general at London. He was prominent in the Fenian movement, the Land League, and other Irish organizations. He was mayor of Boston 1902–5.

COLLINS, WILLIAM: English poet: 1721, Dec. 25—1756: b. Chichester, where his father was a hatter. He received his education at Winchester College and Oxford. In 1742, he published a small volume containing the *Oriental Eclogues*, and the *Epistle to Sir Thomas Hanmer*. Although the publication was without success, he resolved upon a literary career, and went to London 1744. Here, from time to time, he published other poems, chiefly odes; but misfortunes, due largely to his own indolence and irresolution, finally rendered him a prey to melancholy, which at times deepened into insanity. He died at Chichester. The poems which he has left are comparatively few; but they entitle him to a good rank among the poets of the 18th c. He was essentially a lyrical poet; and upon his odes his reputation is founded. All his best qualities appear in the well-known ode on *The Passions*—a poem which, when written, was one of the finest odes in the language. The personification of the passions is true and striking, and the variation of the measure is well adapted to the various emotions to be expressed. Among his notable pieces are the odes *To Liberty, To Mercy, To Evening, Ode written in* 1746, and the first part of the ode *To Fear*.

COLLINS, WILLIAM, R.A.: English artist: 1787, Sep. 18—1847, Feb. 17; b. in Great Tichfield street, London. Collins early showed taste for art. In 1807 he entered the Royal Acad. as a student, and in the same year exhibited two pictures at the academy's exhibition. At first, necessity obliged him to devote himself to portraits, but money coming in rapidly, he was soon able to give his genius its bent; and his children swinging on gates, his children gazing in delighted wonderment on the newly-discovered nest, his coast-scenes, his groups of prawn-fishers, his shrimpers on the ebbed sea-beach, drew admiring eyes as they hung on the academy walls, and brought remunerative prices. Collins was elected R.A. 1820. In 1836 he visited Italy for nearly two years, studying the great masters, and sketching monks and peasants, and groups of bronzed children. In 1839 he sent to the acad. several Italian pictures, which were greatly admired. His attempts in another direction—*Our Saviour with the Doctors in the Temple* (exhibited 1840), and *The Two Disciples at Emmaus* (1841)—were not very successful, and he wisely fell back on his green fields, his sea-beaches, his

rustics, and his children at their games. He died in London.

COLLINS, William Wilkie: novelist: 1824, Jan. 1—1889, Sep. 23; b. London; son of William Collins. He was educated for the bar, but never practiced, and published his first book—a life of his father—1848. His works, several of which were dramatized, include *Antonina* (1850); *Basil* (1852); *Hide and Seek* (1854); *After Dark* (1856); *The Dead Secret* (1857); *The Queen of Hearts* (1859); *The Woman in White* (1860); *No Name* (1862); *Armadale* (1866); *The Moonstone* (1868); *Man and Wife* (1870); *Poor Miss Finch* (1872); *The New Magdalen* (1873); *The Law and the Lady* (1875); *Agnes Warlock* (1875); *Two Destinies* (1876); *The Haunted Hotel* (1878); *The Fallen Leaves* (1879); *Jezebel's Daughter* (1880); *The Black Robe* (1881); *Heart and Science* (1883); *I say No* (1884); *The Evil Genius* (1886); *The Guilty River* (1886); *The Legacy of Cain* (1888); and *Blind Love* (1889).

COLLISH, n. *kŏl'ĭsh:* a tool to polish the edge of a sole, in shoe-making.

COLLISION, n. *kŏl-lĭzh'ŭn* [F. *collision*—from L. *collisĭōnĕm*, a dashing or striking together (see Collide)]: the act of striking together of two hard bodies; opposition; interference. Collisions of Vessels: see Navigation Laws.—Syn.: clashing; conflict; encounter; opposition.

COLLOCALIA, n. *kŏl-lō-kā'lĭ-a* [Gr. *kollos*, glue; *kalia*, a hut, a bird's nest]: genus of birds, family *Hirundinidæ* (swallows). *Collocalia esculenta* is the edible or esculent swallow, or edible-nest swift, which receives both its Latin and its English specific name from the fact that its nest, made mainly of a glutinous secretion from the glands of its mouth, is eatable: see under Bird.

COLLOCATE, v. *kŏl'lō-kāt* [L. *collocātus*, put or set in a place—from *con*, together; *loco*, I set or place: It. *collocare*]: to station. Col'locating. imp. Col'located, pp. Col'loca'tion, n. [F.—L.] *-kā'shŭn*, the act of placing.

COLLODION, n *kŏl-lō'dĭ-ŏn* [Gr *kollōdēs*, gluey, viscous—from *kollē*, glue, *eidos*, resemblance]: a solution of gun-cotton in alcohol and sulphuric ether, used in photography—spread over glass, it leaves a very thin film on which the picture is taken; also used in surgery, leaving a thin skin-like film over wounds, which is impervious to air. Colline, common gelatine, or glue (q.v.). Col'loid, n. *-loyd*, in *chem.*, any compound having a gelatinous appearance: Adj. resembling glue or jelly: N. applied to uncrystallizable liquids. Starch, gum, albumen, and gelatine are examples of *colloids* as distinguished from *crystalloids*. In *geol.*, applied to partly amorphous minerals.

COLLO'DION: substance used first in surgery as a protection for wounds, etc., from contact of air, by the tenacious and transparent film which it leaves on evaporation—now, also, in slightly modified form, used as the basis of a highly sensitive process in photography.—It is a solu-

tion of *Pyroxyline* in a mixture of alcohol and ether, to which is added, for photographic operations, a small quantity of some soluble iodide, bromide, or chloride.

The first step in making collodion is the preparation of pyroxyline: Take 10 fluid ounces of sulphuric acid, specific gravity 1.84, in a dish; add 12 fluid drachms of water and 10 fluid ounces of nitric acid, specific gravity 1.45; and raise the temperature to 140° by immersing the dish in boiling water. One ounce of pure linen or paper should now be immersed in small pieces at a time, keeping the mixture in motion until the liquid is nearly absorbed by the linen or paper.

The action having continued for about ten minutes, the contents of the dish should be plunged into a vessel containing a large quantity of water, which should be speedily poured off and repeatedly changed, until the linen or paper is so thoroughly washed as not to give the slightest indication of acid to the most delicate test-paper, after which it should be slowly dried at a low temperature, and preserved in a glass bottle for use.

Of the pyroxyline thus prepared 104 grains are dissolved in a mixture of 16 oz. of pure sulphuric ether, and 2 oz. alcohol, specific gravity .840; and to this mixture are added 48 grains iodide of cadmium, 30 grains iodide of potassium, and 25 grains bromide of cadmium, dissolved in 4 oz. of alcohol, of specific gravity .840. Collodion thus prepared should, after becoming clear by subsidation, yield a rich creamy film of iodide and bromide of silver on immersion in the nitrate bath.

The foregoing formula yields a collodion very suitable for taking what are termed *negative* impressions in the camera; but when it is desired to take *positive* pictures, cotton wool should be substituted for linen or paper in the preparation of the pyroxyline, and the iodizing solution should contain iodide of ammonium instead of iodide of potassium. It is important also that the alcohol employed should be free from organic impurities in the shape of fusel and grain oils, small traces of which mar the purity of the high lights in a positive, though their presence is comparatively harmless in a negative photograph. For surgical purposes a *flexible* collodion is used, composed of collodion, combined with certain proportions of Canada balsam and castor-oil: see CELLULOID: GUN COTTON.

COLLODIONIZED PAPER PROCESS.—Paper being substituted for glass in this process, as a basis upon which to support the film, a great increase in portability is arrived at, as the sensitive sheets may be carried in a portfolio, and employed in the same manner as dry collodion plates. There are some difficulties, however, in the way of its successful practice. The following is a brief summary of the manipulations. Mr. Corbin, inventor of the process, ascertained that a peculiar collodion was requisite, the formula of which is as follows: ether, 650 parts; alcohol, 350 parts; pyroxyline, 15 parts; iodine, $1\frac{1}{4}$ part. The collodion so prepared is poured on the glass in the usual way, and sen-

sitized in a bath containing only one per cent. of nitrate silver, and a half per cent. of nitric acid. The plate, having remained in this bath about two minutes, is withdrawn and freely washed with water; it is then immersed in a solution of one per cent. of iodide of potassium, to insure the complete decomposition of the whole of the free nitrate of silver not removed by the washing. A piece of negative paper is now coated with a solution of gelatine, containing 6 parts of gelatine to 100 parts water: the dimensions of the paper should be rather less than the glass, and the gelatinized side is brought into contact with the collodion film in a dish of water, any intervening water being expelled by passing a glass rod lightly over it. The edges of the collodion film which project beyond the paper are folded back on it, and the film and paper removed together. The now collodionized paper is laid, film uppermost, on a glass plate, coated with a preservative solution, composed of equal parts of albumen and honey, diluted sufficiently to enable it to flow freely over the paper. The film is lastly sensitized in a solution of nitrate of silver, 5 parts; glacial acetic acid, 5 parts; water, 100 parts, it is then freely washed as before in water, and hung up to dry. As it is apt to wrinkle in drying, it should be attached by all four corners to two lines.

Collodio-Chloride Process: photographic printing process invented about 1863. It consists in holding in suspension a precipitate of chloride of silver in collodion, which is flowed upon glass or paper, in a manner similar to preparing a plate for the negative process, and dried in the dark. An excess of free nitrate of silver is necessary to impart sensitiveness; an addition of citric acid and other organic substances is used to produce the desired tints. After exposure the picture is fixed and toned as usual.

COLLOGUE, v. *kŏl-lōg′* [F. *colloque*, a colloquy—from L. *con*, together; *loquor*, I speak]: in *OE.*, to converse secretly; to confederate, as for an unlawful purpose; to wheedle; to flatter. Collog′uing, imp. Collogued, pp. *kŏl-lŏgd′*.

COLLOP, n. *kŏl′lŏp* [Ger. *klopps*, meat made tender by beating: Sw. *kalops*, slices of beef stewed: Dut. *klop;* It. *colpo*, a blow]: formerly a slice of meat made tender for cooking by beating; a small slice of meat. Collop-Monday, the Monday before Lent. In the north of England, fried slices of bacon were formerly eaten on this day. Mince collops, n. plu. meat minced into very small pieces.

COLLOPHORA, n. *kŏl-lŏf′o-ra* [Gr. *kollē*, glue; *phoreō*, I bear]: a genus of plants, order *Apocynaceæ*, tribe *Willughbeiæ*. *Collophora utilis*, a South American species, yields caoutchouc, (India Rubber).

COLLOQUIAL, a. *kŏl-lō′kwĭ-ăl* [L. *collŏquĭum*, a conversation, a discourse—from *con*, together; *loquor*, I speak: It. *colloquio;* F. *colloque*, a colloquy]: pertaining to ordinary conversation. Collo′quially, ad. *-lĭ*, in a familiar, conversational manner. Collo′quialism, *-ĭzm*, a form of expression in familiar common use. Colloquist, n. *kŏl′lō-kwĭst*, a

speaker in a dialogue. COLLO'QUY, n. *-kwĭ*, conversation between two or more; a conference; dialogue. COLLO'QUIALIZE', v. *-ăl-īz*, to render colloquial.—SYN. of 'colloquy': conversation; conference; dialogue; discourse.

COLLOT D'HERBOIS, *ko-lo' dėr-bwâ'*, JEAN MARIE: 1750-1796, Jan. 8; b. Paris: infamous character in the first French Revolution. Originally a provincial actor, the revolutionary movement attracted him to Paris, where his impudence, his loud voice, and his *Almanach du Père Gérard*, which obtained the prize of the Jacobin Club, secured public recognition, and he was elected to the national convention as one of the deputies for Paris. His general ferocity marked him as fit for the presidency of the convention, to which he was appointed 1793, June 13, and as a member of the murderous committee of public safety. Sent by Robespierre to Lyon 1793, Collot D'Herbois took bloody revenge on the inhabitants for having once hissed him off the stage in the theatre. Not less than 1,600 persons were destroyed by the guillotine and by discharges of grape-shot. An attempt made to assassinate Collot D'Herbois (1794, May 23), served only to increase his popularity, and thus excited the envy of Robespierre, who determined to destroy so formidable a rival. Collot D'Herbois therefore was prominent in the overthrow of Robespierre and his party, 1794, July, but the reaction following this event proved fatal to himself. Collot D'Herbois was expelled from the convention and, 1795, Mar., was sentenced to deportation to Cayenne, where he caught a fever and died in great agony.

COLLUDE, *kŏl-lôd'* [L. *collūdĕrĕ*, to play or sport together—from *con*, together; *ludĕrĕ*, to play, to mock: It. *colludere;* F. *colluder*]: to play into each other's hands; to conspire in a fraud; to act in concert. COLLU'DING, imp. COLLU'DED, pp. COLLU'DER, n. one who. COLLU'SION, n. *-lô-zhŭn* [F. *collusion*—from L. *collūsĭōnem* sport or play together]: secret agreement between two or more persons for some evil purpose, as to defraud any one. The law abhors collusion, and makes void every transaction founded upon it. Arrangements between bankrupts and creditors whom they wish to favor, on the eve of bankruptcy, are among the most frequent instances of it, and one object of all systems of bankrupt laws has been to defeat them. In England it is spoken of as 'a deceitful agreement or contract between two or more persons, for the one to bring an action against the other, to some evil purpose, as to defraud a third person of his right.—*Tomlin's Dictionary.* But there is not limit to the circumstances in which its occurrence is conceivable. COLLU'SIVE, a. *-sĭv* [L. *collūsus*, played or sported together]: deceitful; fraudulent. COLLU'SIVELY, ad. *-lĭ*, in a manner to defraud secretly. COLLU'SIVENESS, n. COLLU'SORY, a. *sėr-ĭ*, carrying on fraud by secret agreement.

COLLUM, n. *kŏl'lŭm* [L. *collum*, the neck]: in *bot.*, the part where the stem and root join, termed the neck of a plant.

COLLUSION, COLLUSIVE, etc.: see under COLLUDE.

COLLY, COLLIE, or COLLEY, n. *kŏl′lĭ* [Gael. *colg*, the hair or fur of an animal; *colgach*, hairy, shaggy; *cu*, a dog: comp. Gr. *kŭōn;* L. *canis*, a dog]: in *Scot.*, the shepherd's dog, of a peculiar breed, remarkable for its sagacity—so named from its shaggy hair.

COLLY, n. *kŏl′lĭ* [Norse, *kola*, to black or smut; *kolut*, smutted: Sw. *kolna*, to become black]: smut; soot; the smut or grime of coal: V. to blacken with soot; to smut. COLLYING, imp. *kol′lĭ-ĭng*. COLLIED, pp. *kŏl′lĭd:* ADJ. blackened; smutted.

COLLYER, *kŏl′yėr*, ROBERT, D.D.: Unitarian minister: b. Keighley, Yorkshire, England, 1823, Dec. 8. (He has sometimes been confused with Robert Laird Collier, 1837-90, b. Md., also originally a Meth., afterward a popular Unit. preacher in Chicago and Boston.) At the age of 8 he became a factory operative; at 14 was apprenticed to a blacksmith. His tuition was limited to an evening school for two seasons. In 1849, he preached as a Methodist, and the next year came to the United States, practicing his handicraft at Shoemakertown, Penn., but still preaching. Embracing Unitarianism, he went to Chicago 1859, and soon organized the Church of the Unity. In 1879, he became pastor of the Church of the Messiah, New York, becoming pastor emeritus 1896. His style spoken and written has singular charm. Included in his publications are: *Nature and Life* (1864); *The Life that Now Is* (1871); *The Simple Truth* (1878); *A History of the Town and Parish of Ilkley* (England 1886, written with Horsefall Turner); *Talks to Young Men* (1888); *Things New and Old* (1893); *A Man in Earnest.*

COLLYRIUM, n. *kŏl-lĭr′ĭ-ŭm* [Gr. *kollu′rĭŏn*, an eye-salve]: a lotion or wash for any part of the body, latterly applied chiefly to a wash for the eyes; an eye-water.

COLMAN, *kōl′man*, BENJAMIN, American clergyman: b. Boston, Mass., 1673, Oct. 19; d. there 1747, Aug. 29. He graduated in Harvard in 1692, began preaching, sailed for England 1695, was captured by a French privateer, and after a short imprisonment, reached England. He received ordination in London, and returned to take charge of the Brattle Street Church, Boston, remaining with that society until his death. He was for many years one of the leading clergymen of New England, exerting a strong influence on civil affairs that frequently drew censure upon him. He procured considerable benefactions for Harvard and Yale, and was offered, but declined, the presidency of the former, in 1724. His collected sermons were printed at Boston 1707-22, and his *Life* was written by his son-in-law, Rev. E. Turell (1749).

COLMAN, GEORGE ('THE ELDER'), English dramatist: b. Florence 1733, April 28; d. London, 1794, Aug. 14. He wrote in 1760-1 the comedies of *Polly Honeycombe* and the *Jealous Wife*. *The Clandestine Marriage* we owe to him

and Garrick. This was left unfinished, and it has never been ascertained to which of the authors most credit is due for one of the best pieces in our theatrical repertory. *The English Merchant*, the *Oxonian in Town*, and other pieces, followed the foregoing. In 1777 he purchased the little theatre in the Haymarket, and continued in the personal superintendence of it till the year 1790.

COLMAN, George ('The Younger'), English dramatist, son of the preceding: b. London 1762, Oct. 21; d. there 1836, Oct. 26. He was entered as a student in the Temple, but soon left legal studies for dramatic and general literature. He assisted his father as director of the Haymarket Theatre, and succeeded him as its patentee. After selling his interest in the theatre he was appointed examiner of plays, the duties of which he performed with a severe purism, hardly to have been expected in a man who wrote with almost licentious freedom himself. Most of his dramas were well received, and some of them still keep the stage; as *John Bull;* the *Heir-at-law; Poor Gentleman;* and *Love Laughs at Locksmiths.*

COLMAN, Norman J., American office holder: b. Richfield Springs, N. Y., 1827, May 16. He settled in St. Louis, Mo., and adopted the legal profession. In 1874 he was elected lieutenant-governor, and was commissioner of agriculture in President Cleveland's first administration 1885-9. Shortly before his term of office ended, Congress enacted the law raising the Department of Agriculture to the rank of an executive department, with its chief a Cabinet officer, 1889, Feb. 11, and Colman was its first secretary.

COLMAN, Samuel, American landscape painter: b. Portland, Maine, 1832, March 4. He studied in Europe 1860-2; was elected a member of the National Academy in 1862; and first president (1866-71) of the American Society of Painters in Water Colors. He has traveled extensively, and his pictures include scenes from Algeria, Germany, France, Italy and Holland.

COLMAR, *kōl-mâr:* city ceded to France 1697, and repossessed by Germany since 1870: cap of UpperAlsace; on a plain near the Vosges, 41 m. n.n.e. of Strasburg. A stream of water from the Lauch and Fecht, at the confluence of which the town stands, flows through and keeps the streets clean. Among principal buildings are the cathedral, the Dominican church, college, court-house, and town-house. Colmar is a busy place—one of the chief seats of the cotton manufacture in Alsace. Water, being abundant, is the principal motive-power for the machinery, but steam also is employed. Other manufactures are paper, leather, ribbons, and hosiery. Colmar is an old place, having been raised to the rank of a city 1220. About the end of that century, it was made a free town, and rapidly became one of the most prosperous in Upper Alsace. Fortified 1552, its fortifications were razed 1673 by Louis XIV., and pleasant boulevards now occupy their place. Pop. about 30,000.

COLNE, *kōln:* town in the e. of Lancashire, England, on a high ridge near the source of the Calder, w. branch of the Ribble; 32 m. n.e. of Manchester, at the junction of the Lancashire and Yorkshire and Midland railways. It has manufactures of cotton calicoes, and mousselines-de-laine. Coal, slate, and lime abound in the vicinity. Colne is an ancient place, by some supposed to be the *Colunio* of the Romans. Many Roman coins have been found here. As early as the beginning of the 14th c. it was the seat of woolen manufactures. Pop. 23,000.

COLOCO'LO: large and fierce cat in northern S. America; it preys on various small animals.

COLOCYNTH, n. *kŏl'ō-sĭnth* [Gr. *kolokun'this*, the wild or purging gourd]: the bitter apple of the druggists; well-known medicine, much used as a purgative; the dried and powdered pulp of the *Colocynth Gourd, Coloquintida, Bitter Apple*, or *Bitter Cucumber*, a globose fruit about the size of an orange, of a uniform yellow color, with a smooth, thin, solid rind. The plant which produces it, *Cucumis* (or *Citrullus*) *Colocynthis*, is nearly allied to the cucumber (q.v.). It is common in Asia, Africa, and Spain, which last country supplies much of the colocynth of commerce. The fruit is gathered when it begins to turn yellow, peeled, and dried quickly either in a stove or in the sun. It is chiefly in the form of a dried extract that is used in medicine. It owes its properties to a bitter principle called *Colocynthine*, more or less abundant in the fruits of many of the gourd-family. It is a remarkable fact, but to which there are many analogous, that the seeds of the colocynth plant produced in the midst of its medicinal pulp, are perfectly bland, and even form an important article of food in the n. of Africa. The name false colocynth is sometimes given to the orange gourd (*Cucurbita aurantia*), sometimes cultivated as an ornamental plant in gardens, for its globose, deep-orange fruit. The pulp of the fruit has the properties of colocynth, but in milder degree.

Colocynth is administered usually in the form of pills, in which the extract is associated with aloes, scammony, and in some cases with calomel or with extract of hyoscyamus. In small doses the colocynth acts as a safe and useful purgative; and when accompanied by hyoscyamus, the latter prevents much of the pain and griping attendant on the use of colocynth by itself. In large doses, colocynth is a poison.

COLOCZA, *ko-lots'ŏ*, or KALOCSA, *kŏ-loch'ŏ:* town of Hungary, on the left bank of the Danube, 68 m. s. of Pesth. It has an archiepiscopal palace or castle and a cathedral. The inhabitants are busied chiefly in the fisheries on the Danube and in the breeding of cattle. There is a steam-packet station at Colocza. Pop. about 20,000.

COLOGNE, or COLOGNE-WATER: see EAU-DE-COLOGNE.

COLOGNE, *kō-lōn'* [Ger. *köln;* the *Colonia Agrippina* of the Romans]: city and free port on the left bank of the Rhine: lat. 50° 56′ n., long. 6° 58′ e. Formerly an

THE CATHEDRAL OF COLOGNE.

independent city of the German Empire, it is now cap. of Rhenish Prussia. Cologne is a fortress of the first rank, forming a semi-circle, with the Rhine as its chord, and the town of Deutz on the opposite bank as a tête-du-pont. It is connected with this suburb by a bridge of boats, and a fine iron bridge 1,362 ft. in length, for railway and carriage traffic. Pop. (1900) 372,229, of whom only 25,115 were Protestant. The streets are mostly narrow and crooked. The public buildings are numerous, including a number of educational and of charitable institutions. The church of St. Ursula is noted as the place where are preserved the bones of 11,000 virgins, companions of St. Ursula (q. v.) who, according to the legend, were slaughtered at Cologne by the Huns, because they refused to break their vows of chastity. In the 'golden chamber' are the coffin of the saint, and the skulls of a few of her most favored maidens incased in silver. The church of St. Gereon, the first portion of which was founded 1066, boast of the possession of the bones of St. Gereon, and of the 6,000 Theban martyrs slain during Diocletian's persecution. The church of St. Peter is celebrated for the altar-piece of the crucifixion of St. Peter by Rubens; and that of the Minorites for containing the tomb of the famous scholastic, Duns Scotus. The chief object of interest in the city, however, as well as its greatest ornament, is the cathedral, one of the noblest specimens of Gothic architecture in Europe. This cathedral is said to have had its origin in an erection by Abp. Higebold during the reign of Charlemagne, 814. Frederic the Red-bearded bestowed on it, 1162, the bones of the three holy kings, which he took from Milan, and this gift contributed greatly to the increase of its importance. The bones are retained as precious relics to this day; but the old structure was burned 1248; according to some accounts the present cathedral was begun in the same year, but others fix the date of its commencement 1270–75. To whom the design of this noble building is to be ascribed, is uncertain. The choir, the first part completed, was consecrated 1322. The work was carried on, sometimes more actively, sometimes more slowly, till the era of the Reformation, when it was suspended; and during the subsequent centuries not only was nothing done to advance it, but what had been already executed was not kept in repair. In the beginning of the nineteenth c. attention was directed to its unrivalled beauties, and it has since become the subject of an enthusiasm extending over all Germany, which has given birth to a multitude of associations for the supply of the necessary funds to repair and complete it according to the original design. Funds have been forthcoming also from other parts of Europe. In 1842, Sep. 4, the king of Prussia, who had contributed largely to the funds, laid the foundation-stone of the transept, since which time great progress has been made. The naves, aisles, and transepts were opened 1848. The magnificent S. portal was completed 1859,

and the n. also has been finished; and in 1860 the iron central spire was added. With the exception of the towers the church was completed 1863; and the towers, the crown of the edifice, were finished 1880, Aug. The body of the church measures 500 ft,. in length, 230 ft. in breadth; the towers are above 500 ft. high. Since 1823 $5,000,000 has been expended on the building; the total cost of the whole is estimated at $10,000,000.

The situation of Cologne is extremely favorable for commerce. Various branches of manufacture are carried on, of which the chief are the making of beet-sugar, tobacco, glue, carpets, soap, leather, furniture, pianos, chemicals, and spirits of wine, besides the characteristic manufacture of eau-de-Cologne (q.v.). Cologne has extensive and important railway connections.—The city was founded by the Ubii, about B.C. 37, and was called at first *Ubiorum oppidum;* but a colony being planted here A.D. 50, by Agrippina, wife of the emperor Claudius, it received the name of *Colonia Agrippina.* At the partition of the Frank monarchy 511, it was included in Austrasia; and by a treaty, 870, was united to the German empire. It entered the league of the Hanse towns in the beginning of the 13th c., and contended with Lübeck for the first rank. It was at a very early date the seat of a bishopric, which was elevated, in the end of the 8th c., into an archbishopric, and the archbishops acquired considerable territories, some of them distinguishing themselves as politicians and warriors. They took their place among the princes and electors of the empire, but were involved in a protracted contest with the citizens of Cologne, who asserted against them the independence of the city, and the archiepiscopal residence was therefore removed to Bonn. The archbishopric was secularized 1801, when the city also lost its independence, and the congress of Vienna did not attempt to restore to it its former character, but assigned the whole territories to Prussia. The abp., therefore, has not now the political rights and power of his predecessors.

COLOMBIA, *kō-lōm'bē-â:* term which immediately after the war of independence embraced all that now belongs to the three republics of Venezuela, United States of Colombia, and Ecuador—being the entire north of S. America, and the extreme south of what is geographically distinguished as Central America. Independently of the great difficulties of communication, and of the resulting absence of anything like natural unity, this unwieldy state contained, from the beginning, the cause of its own dissolution in the diverse national character of its inhabitants. So long as union was necessary to meet external dangers, Colombia maintained an imposing attitude in the eyes of the world; but, gradually, sectional interests and political jealousies did their work, and at last, about 1830, the ill-assorted elements of the confederation were separated.

COLOMBIA, REPUBLIC OF: official title since 1886, of

what was formerly called New Granada. It was organized after the revolution of 1884–5, and the new constitution, 1886, reduced the 9 former self-governing states of Antioquia, Bolivar, Boyacá, Cauca, Cundinamarca, Magdalena, Panama, Santander, and Tolima to subordinate departments, which still, however, retain the management of their own finances. It is bounded on the n. by the Caribbean Sea, e. by Venezuela, s. by Ecuador and Brazil, and w. by Costa Rica. The executive authority is vested in a pres., elected for 6 years, who is assisted by a vice-pres., 6 ministers, and a council of state; and the legislative in a senate and house of representatives. The strength of the army in peace is 5,500, in war 1 per cent. of the population. The United States trade with Colombia was, 1906, imports $3,491,420, and the United States took about 27 per cent. of Colombia's entire exports, which in 1904 amounted to $12,658,000.

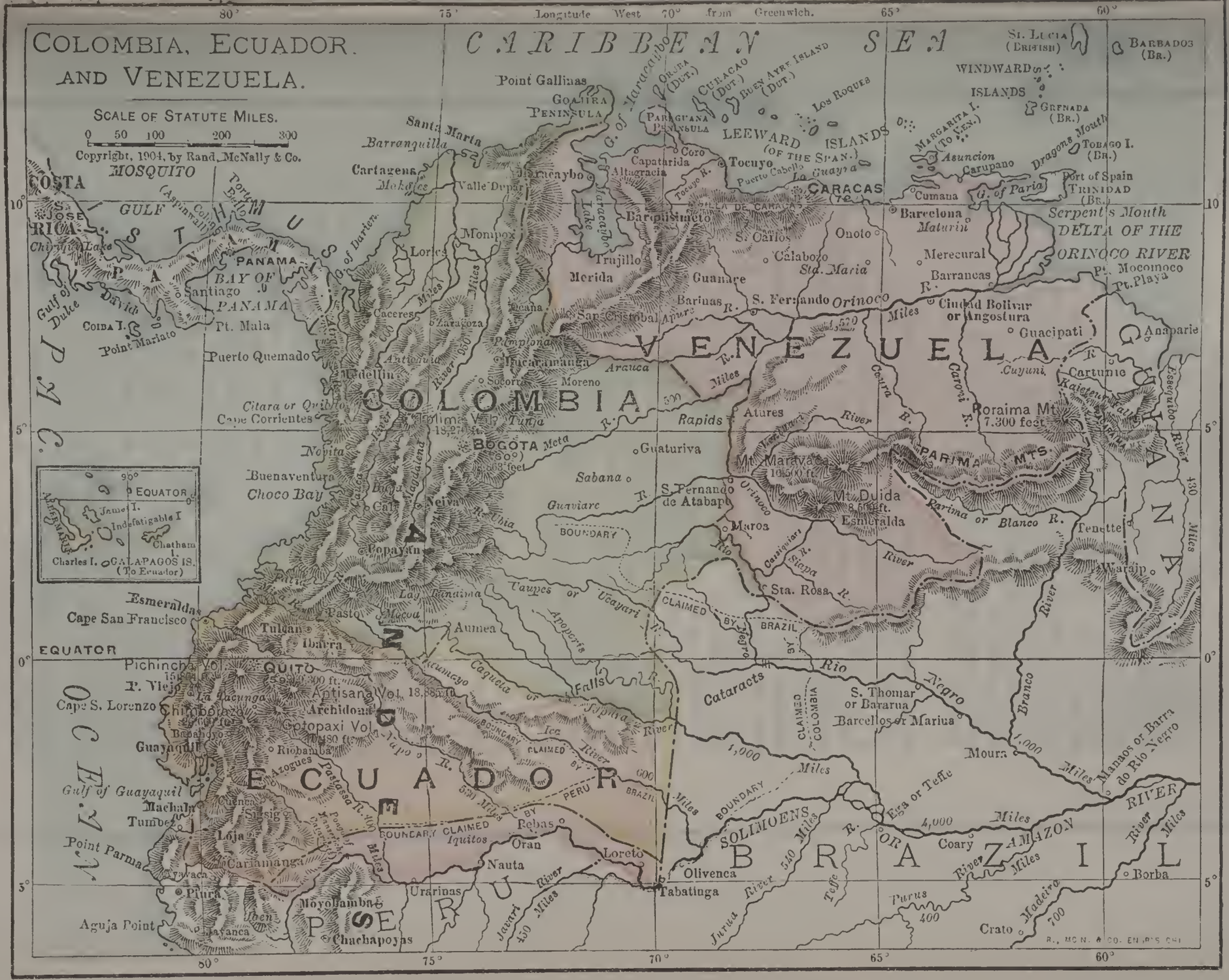
The country is intersected by three great ranges of the Andes, which spread out like the rays of an open hand from the plateau of Pasto and Tuquerrez in the south (14,000 feet high), and are known as the Western, Central, and Eastern Cordillera. Between these chains lie the long and beautiful valleys of the Cauca and the Magdalena. The Central Cordillera is the highest chain, rising in Nevada de Tolima to a height of 18,020 ft., and from one of its peaks, near the frontiers of Ecuador, called Paramo de las Papas, descend the two principal rivers of Colombia, the Magdalena and its tributary the Cauca, flowing north into the Caribbean Sea, besides several affluents of the Amazon in the east, and one or two streams flowing westward into the Pacific. Bogota (q.v.), the present capital, is situated on one of these plateaus, at an elevation of 8,694 ft. Eastward from this Cordillera stretch enormous plains as far as the Orinoco, the greater part of which belongs to Colombia, and through which flow the Meta, the Guaviare, and other tributaries of the Orinoco. With its great variety of levels and climates, Colombia yields naturally an equally great variety of producti ns—cattle, horses, wheat, and other European grains, maize, tobacco, coffee, plantains, cotton, cacao, sugar, cedar, mahogany, cinchona bark, ipecacuanha, gold, silver, copper, iron, and lead, coal, emeralds, pearls, and rock salt.

The revenue of the government is mainly derived from the customs. Minor sources of revenue are the government monopolies—the salt mines near Bogota, the slaughtering of cattle, and the sale of meat. Estimated expenditures for 1906 amounted to $10,632,389. The sale of monopolies supplies the departmental governments with a large portion of their revenues. The total external debt of the nation in 1906 amounted to $19,541,567; the arrears of interest being about $506,000. The internal debt, two months before the war began, had reached a total of 11,359,074 pesos.

At the beginning of the year 1904, according to official

information, there were in the republic 411 miles of railways; and before the events of November, 1903, eleven lines of steamships plied between the ports of Colombia and those of Europe and the United States. England has five lines, France two, Germany two, Italy one, and Spain one. There was not a single line of American steamers running to Colombian ports at that time. Inland traffic on the Magdalena River employs 42 small steamers. In some recent years the post-office has carried only about 2,600,000 letters, postal cards, newspapers, and parcels. The telegraph system has suffered especially. The total length of its lines in 1904 was given as 6,475 miles; the principal cities being connected with each other, and with the systems of Venezuela and Ecuador, as well as (by cable) with the United States. All the telegraph lines are owned by the government.

The chief aborigines of the country, called *Chibchas*, or *Muyscas*, held a high rank among the semi-civilized nations of the new world. They are said to have been frugal and industrious, with a well-organized government and a very passable religion—for heathens. They were conquered by Ximenes de Quesado (1536–37), and their descendants are now 'Christians,' and speak the Spanish language. Several of the other tribes maintain a savage mode of life; and some, as the Mesayos, are even said to be cannibals. In 1778, New Granada was made a vice-royalty by Spain. In 1819 it became independent, and joined with Eucador and Venezuela to form the republic of Colombia; but the union was dissolved in 1829–30, and New Granada was organized as a separate republic, 1832. After several changes in the constitution (in 1843, '51, '53), a complete fundamental change was made in 1858 by which the separate 'provinces' were changed into 'states,' associated under a federal government like the 'United States' of N. America, but self-governing in all internal affairs. This form of government lasted till the revolution 1861, when the conservatives, or federalists, and the liberals concluded a convention and established the United States of Colombia. In 1863 a constitution was adopted similar to that of the United States of America, with a pres. elected for two years, but this proved unsatisfactory, and after 20 years' trial brought about the revolution 1884–5. After this the title of the govt. was changed to the Republic of Colombia, and 1886 another constitution was adopted, as already stated. Toward the end of 1892 the flame of civil war finally went out. The government was almost destitute of money; it could neither pay interest on the national debt nor meet current expenses. Congressional elections were held throughout the country. The most important matter to come before that congress was the question of ratifying a convention concluded at Washington 1903, 22 Jan., between the secretary of state of the United States of America and the chargé d' affaires of Colombia, for the construction of a ship canal to connect the Atlantic and Pacific oceans. The French Panama


COLOMBIA, ECUADOR, AND VENEZUELA.
SCALE OF STATUTE MILES.
0 50 100 200 300
Copyright, 1904, by Rand, McNally & Co.
Longitude West from Greenwich.
CARIBBEAN SEA
COLOMBIA
VENEZUELA
ECUADOR
PERU
BRAZIL
PANAMA
COSTA RICA
MOSQUITO
GULF OF PANAMA
PACIFIC OCEAN
BAY OF PANAMA
Panama Canal
Isthmus of Darien
Gulf of Dulce
Coiba I.
Point Mariato
Chiriqui Lake
Santiago
Pt. Mala
Puerto Quemado
Point Gallinas
Goajira Peninsula
Santa Marta
Barranquilla
Cartagena
Mokoles
Valle Dupar
Maracaibo
Lake Maracaibo
G. of Maracaibo
Oruba (Dut.)
Curacao (Dut.)
Buen Ayre Island (Dut.)
Los Roques
Paraguana Peninsula
Coro
Capatarida
Altagracia
Tocuyo
Puerto Cabello
La Guayra
CARACAS
Tocuyo R.
Silla de Caracas
Barquisimeto
Trujillo
Merida
Lorica
Monpox
Caceres
Zaragoza
Pamplona
Bucaramanga
Socorro
Moreno
Medellin
Antioquia
Citara or Quibdo
Cape Corrientes
Nipita
Buenaventura
Choco Bay
Esmeralda
Cape San Francisco
EQUATOR
Tulcan
Ibarra
Pasto
Mocoa
Aunea
Popayan
Cali
Neiva
Upia R.
Sabana
Guaviare R.
BOGOTA
8,908 feet
Meta
Guaturiva
S. Fernando de Atabapo
Maroa
BOUNDARY
Rio Casiquiare
Siapa River
Sta. Rosa R.
CLAIMED BY BRAZIL
Rio Negro
Cataracts
S. Thomar or Bararua
Barcellos or Mariua
Moura
Manaos or Barra do Rio Negro
Rio Branco
Rio Japura
Taupes or Ucayari R.
Anapoyma
Caqueta or Japura River
Ica River
Iquitos
Pichincha Vol. 15,918 ft.
P. Viejo
La Tacunga
Aptisana Vol. 18,356 ft.
Archidona
Cotopaxi Vol. 19,550 ft.
Riobamba
QUITO 9,300 ft.
Cape S. Lorenzo
Chimborazo 20,498 ft.
Bucay
Guayaquil
Gulf of Guayaquil
Azogues
Pastoza R.
Cuenca
Sigsig
Machala
Tumbez
Loja
Point Parma
Zaruma
Carlamanga
Piura
Aguja Point
Sechura
Morropon
Chachapoyas
Huallaga R.
Ucayali R.
Urarinas
Nauta
Loreto
Rebas
Oran
Tabatinga
Olivenca
Jurua River
Jutahy River
Jacari River
Teffe R.
Teffe or Tefle
Coary
Amazon River
Solimoens
Purus
Madeira
Crato
Borba
Maturin
Barcelona
Merecural
Barrancas
Onoto
S. Carlos
Calabozo
Sta. Maria
Guanare
Barinas
S. Fernando
Orinoco
Apure
San Cristobal
Ciudad Bolivar or Angostura
Guacipati
Anaparie
Cartumie
Cuyuni
Caroni R.
Caura R.
Atures
Rapids
Mt. Maravaca 10,500 ft.
Mt. Duida 8,600 ft.
Esmeralda
Parima Mts.
Roraima Mt. 7,300 feet
Rarima or Blanco R.
Tenette
Waraip
Kaieteur Falls
Essequibo River
Mocomoco
Pt. Playa
Serpent's Mouth
DELTA OF THE ORINOCO RIVER
Port of Spain
TRINIDAD (Br.)
TOBAGO I. (Br.)
Dragons Mouth
Asuncion
Carupano
Cumana
G. of Paria
MARGARITA I. (To Ven.)
WINDWARD ISLANDS
GRENADA (Br.)
ST. LUCIA (British)
BARBADOS (Br.)
LEEWARD ISLANDS (OF THE SPAN.)
Jamel I.
Indefatigable I
Chatham I.
Charles I.
GALAPAGOS IS. (To Ecuador)
R., MC N. & CO. ENGRS CHI

Company, formed in 1881, had suspended operations in 1889, and in 1894 a new company had been organized, securing a concession for 10 years, which term was subsequently extended by six years. The board of this company had offered (1902, 4 Jan.) to sell all its property and rights to the United States for $40,000,000. The Panama route had been approved by the United States Isthmian Canal Commission. After a long discussion in the United States Senate, the convention was submitted to the Colombian Congress, the Constitution of 1886 providing that ratification by both Houses is requisite for the validity of such an agreement as that relating to the Panama Canal.

The convention just referred to, commonly known as the Hay-Herrán treaty, was defeated at Bogotá, 24 members of the Senate voting on 1903, 12 Aug., to reject it. A counter-proposition prepared by a commission (Aug. 29) was debated for a while, but not adopted. The adjournment of the Colombian Congress on 31 Oct. was followed almost immediately by the outbreak of a carefully planned 'Separatis' movement in Panama. Independence was proclaimed Nov. 3, and the Colombian army and navy officers in the principal city of that department were imprisoned. A provisional government was organized. American warships were ordered to the Isthmus; marines landed at Colon; and the Colombian troops withdrew from the town. On Nov. 6 the government of the United States entered into relations with the government of the Republic of Panama, and on Nov. 13 M. Philippe Bunau-Varilla was formally received by President Roosevelt as minister of the new country. See PANAMA CANAL. Pop. about 4,000,000

COLOMBO, n. *kō-lŏm'bō:* a name applied to the *calumba root*, as erroneously supposed to have come from *Colombo* in Ceylon: see CALUMBA, and COLUMBA

COLOMBO, *kō-lŏm'bō:* capital of Ceylon; episcopal city and seat of government; on the w. side of the island, 6° 50′ n. lat., and 80° 4′ e. long., near a rocky headland, the *Jovis Extremum* of Ptolemy, by which the mariners of antiquity steered for the port of Galle. The modern fortifications of Colombo, constructed by the Dutch, include, on the land side, four bastions with counterscarps and ravelins, and, toward the sea, seven batteries.

The early name of Colombo, Kalan totta, the 'Kalany Ferry,' so called from its proximity to the river, the Moors corrupted into Kalambu, and by this designation it was described about A.D 1340 as the finest city of Serendib. At the arrival of the Portuguese, who fortified it 1517, Kalambu had merged into Kolamba or Columbu, which they henceforth wrote Colombo, in honor of Christopher Columbus. The Dutch succeeded to the Portuguese (see CEYLON), and Colombo was taken by the British, 1796, Feb. 16. Pop. (1901) 154,556.

COLON, n. *kō'lŏn* [L. *colon;* Gr. *kōlon*, the largest of the intestines, a member; It. and F. *colon*]: the largest

of the intestines; in writing or printing, the mark [:] chiefly used to separate the perfect clauses of a sentence, and which indicates a longer pause than a semicolon [;], but a shorter one than a period [.]: see PUNCTUATION.

COLON, *kō'lŏn*, formerly ASPINWALL, *ās'pĭn-waul:* sea-port town of Panama (q.v.), the Atlantic terminus of the Panama r.r. and canal, and virtually part of the U. S. 'canal zone.' It is 49 m. e. of Panama, the Pacific terminus, and from its commanding position as a place of transit, almost monopolizes the benefits of the traffic in both directions. Founded in 1849, on an islet between Naos or Newbay and Manzanillo ports in Limon Bay, and first named after Mr. Aspinwall, the builder of the Panama r.r., completed in 1855, it was subsequently renamed Colon in honor of Columbus, of whom there is a fine bronze statute, the gift of the French Empress Eugenie in 1870.

Colon was burned down in the revolution of 1885, and rebuilt on improved plans, but relapsed into its former unsanitary condition through neglect. Since the commencement of the U. S. Panama canal in 1904, sanitary conditions have again improved, and with the completion of the new water supply, will attain a healthful condition. The town is electrically lighted, has four wharves, and a breakwater to form an outer terminal harbor is projected to extend from Toro Point light to Colon light across the mouth of Limon Bay. About 600,000 tons of shipping are annually entered at Colon; the imports in 1903 amounted in value to $952,684, of which dry goods, provisions, coal, lumber, kerosene, hardware and liquors to the value of $614,179 came from the U. S. The exports from C. to the U. S. in 1903, including bananas, cocoanuts, turtle shells, ivory-nuts, hides and coffee, amounted to $173,370. A long standing treaty gives the U S. govt. the right to preserve free transit across the Isthmus from interruption, and for this purpose U. S. forces were landed at Colon during the revolutions of 1885, 1899, and 1903. Pop. 5.000.

COLON: that portion of the large intestine which extends from the cæcum (q.v.) to the rectum, which is the terminal portion of the intestinal canal. Whether it is derived from *koilon*, 'hollow,' or *kōlao*, 'I arrest' (because the fæces are retained for a considerable time in it), is uncertain. See ALIMENTARY CANAL.

COLONEL, n. *kėr'nēl* [F. *colonel*—from It. *colonello*, a colonel, also a little column—from L. *columna*, a column: OF. and Sp. *coronel*—*lit.*, one who leads the little column or company]: the chief officer of a regiment; an officer of the highest rank below a general. LIEUTENANT-COLONEL, the second officer in a regiment, in rank next below a colonel. COLONELCY, *kêr'nēl-sĭ*, or COL'ONELSHIP, n. the rank or commission of a colonel.

COL'ONEL: highest officer of a regiment; any grade above this converts him into a general officer belonging to the army collectively rather than to any one regiment.

Before the reign of Elizabeth the chief officer of an English regiment was captain, but in 1588 the title of colonel had become familiar. In the British army of the present day, except in the artillery and engineers, the office of regimental colonel is a sinecure, the real active commander of the battalion being the lieut.col. The colonel receives higher pay and dignity. The colonels are generals, who have had what is called a regiment 'given to them' as a reward for long service, and virtually as a retirement. The pay, except in the guards (where it is higher), is £1,000 a year: see COMMISSIONS: ARMY. Apart from regimental rank there is the army or brevet rank of colonel, through which all officers must pass on the way to general officer. It is attained by specified service in certain positions as lieutenant colonel. In the Austrian, Prussian, and Russian armies, where the regiments are very large, the colonelcies are mostly honorary posts, held by emperors, kings, princes, and other distinguished persons. In the U. S. army, a col. holds the same rank as in the Brit. army—above lieut.col. and below brigadier-gen.; but he is regularly the acting commander of a regt., though on emergency assigned to duty as a brigadier.

COLONIA DO SANTISSIMO SACRAMENTO, *ko-lō'-ne-â do sân-tēs'sē-mo sâ-krâ-mĕn'to:* port of Uruguay or Banda Oriental, on the n. or left bank of the Plata, nearly opposite Buenos Ayres, about 100 m. above Monte Video, cap. of the state. The place is fortified. As its acquisition would tend to secure to Buenos Ayres the entire command of the interior navigation, the town was seized by Rosas, the dictator of that state; but, in the interest of the freedom of commerce, it was, 1845, taken from him by the French and English squadrons.

COLONIA POWDER, *ko-lō'nĭ-a:* mixture of gunpowder with nitro-glycerine (q.v.)

COLONIZATION SOCIETY, THE AMERICAN: organized 1816 to remove negroes to Africa. Efforts had been made long before by Samuel Hopkins, D.D., and Ezra Styles, D.D. of Newport, beginning 1773. A company of 38 negroes were taken from New Bedford to Sierra Leone 1815. Through the efforts of Bp. Meade and others, meetings were held and a constitution adopted; the first officers were elected 1817, June, and two agents sent to Africa, who selected Sherbro Island and the adjoining coast as a site. A settlement was made, 1822, at Cape Mesurado; from this foundation grew the republic of Liberia, 1824, '28, '47. The soc. accomplished a good work, though its primary intention of aiding in the settlement of the menacing slavery question came utterly to nought.

COLONIZATION IN AMERICA: see AMERICA.

COLONNA, CAPE (anc. *Sunium Promontorium*): headland of Greece, the southmost point of Attica; lat. 37° 38′ n., long. 24° 1′ e. Crowned by the ruins of a temple of Minerva, its summit rising about 270 ft. above the water.

Cape Colonna is a conspicuous and remarkable object from the sea. Sixteen white marble columns, from which the cape derives its modern name, are still standing.

COLONNA, Prospero: son of Antonio Colonna, Prince of Salerno and Duke of Amalfi: one of the greatest of Italian generals: d. 1523. On the invasion of Naples by Charles VIII., King of France, 1494, P. C. gave him his aid because the enemies of his house, the Ursini, had espoused the opposite cause. He fought the French after their expulsion, gained a great victory for the king of Spain over the Venetians, 1513, was taken prisoner by the French at the battle of Villafranca, 1515, after gaining his liberty took Milan, 1521, and defeated Lautrec, a celebrated French general, in the battle of Bicoque, 1522. He was pursuing a vigorous and successful campaign at his death.

COLONNA, Vittoria: most celebrated poetess of Italy: 1490–1547, Feb.; member of the powerful Colonna family, daughter of Fabrizio Colonna, high constable of Naples, at whose estate of Marino she was born. When four years old she was betrothed to a boy of the same age, Fernando d'Avalos, son of the Marchese de Pescara. At the age of 17 they were married. After her husband's death, in the battle of Pavia (1525), Vittoria Colonna found her chief consolation in solitude and the cultivation of her poetical genius. During seven years of her widowhood she resided alternately at Naples and Ischia, and then removed to the convent of Orvieto; afterward to that of Viterbo. In her later years she left the convent and resided in Rome, where she died. Her poems were devoted chiefly to the memory of her husband. Among them the *Rime Spirituali* (Venice, 1548) are remarkable for truth of sentiment and enlightened piety. The most perfect edition of the poems of Vittoria Colonna was published by Ercole Visconti (Rom. 1840).

COLONNADE, n. *kŏl′ŏ-nād′* [F *colonnade*—from F. *colonne;* L. *columna,* a column: It *colonnata,* a range of columns—from *colonna,* a column]: a series or range of columns placed at intervals; an avenue of trees.

COLONSAY, *kŏl′on-sā:* one of the Western Isles of Scotland, off the s.w. part of the mainland of Argyleshire, in the wide entrance of the Firth of Lorn, between the isles of Islay and Mull, with the small isle of Oronsay at the s. end, separated by a narrow sound which is dry at low water. Colonsay and Oronsay are together 12 m. long from n.e. to s.w. and one to three miles broad. The surface is irregular, and composed of mica-slate, passing into chlorite-slate and clay-slate, and mixed with quartz-rock and limestone. Half the surface is cultivated. Next to Iona, Colonsay contains the most extensive remains of religious edifices in the Western Isles. On Colonsay stand a large stone cross and the ruins of a monastery founded by the Lords of the Isles in the middle of the 14th c. Pop. of Colonsay about 400.

COLONUS, *kō-lō′nûs:* in civil law, a freeman of inferior

rank, corresponding with the Saxon *ceorl* and the German rural slaves. It has been held probable that many of the ceorls were descended from the *coloni* taken into Saxony by the Romans. The names of the *coloni* and their families were all recorded in the archives of the colony or district, from which fact they are also known as *adscriptitii*.

COLO'NUS: eminence near Athens, to which Œdipus retired during his banishment to Thebes, and from which Sophocles gave the title of Œdipus Coloneus to one of his finest tragedies. According to Pollux, there were two places at Athens known respectively as Equestris and Agorœus Colonnus.

COLONY, n. *kol'ŏ-nĭ* [F. *colonie*—from L. *colōnĭă*, an abode or dwelling—from *colōnus*, a husbandman—from *colĕrĕ*, to till (the first inhabitants of a country being generally eagaged in tilling the ground): It *colonia*]: a body of persons who have gone from their native country to a distant district, or a new country, in order to settle and cultivate it; the country thus settled or planted. COLONIAL, a. *kŏ-lō'nĭ-ăl*, pertaining to a colony. COLONIST, n. *kŏl'-o-nĭst*, an inhabitant of a colony. COL'ONIZE, v. *-nīz*, to settle or plant a colony in; to remove and settle in a country. COL'ONI'ZING, imp. COL'ONIZED, pp. *-nīzed*. COL'ONIZA'TION, n. *-nī-zā'shŭn*, the act of planting with inhabitants. Colonies may either be formed in dependence on the mother country or in independence. In the latter case the name of colony is retained only in a historical sense. The motives which lead to the formation of colonies, and the manner of their formation, are various. The lust of territory; the requirements of commerce; the desire of increasing wealth, combined with the love of adventure; the necessity of relieving the pressure of redundant population; political dissensions; the convenience of removing to a distance persons likely to disturb the peace of the state, and especially the apparent ease with which a numerous criminal class may be got rid of by expatriations, are among the chief motives which have influenced colonization. Colonization is only a more formal development of the migratory tendency; and a colony may be considered as an organized and permanent migration. Among ancient nations the principal promoters of colonization in the more formal sense were the Phœnicians, the Greeks, and the Romans, and the greatest colonizers in modern times have been the English and the Spaniards, next to whom may be reckoned the Portuguese, the Dutch, and the French. The Phœnician colonies, extending along the shores and throughout the islands of the Mediterranean, were mainly commercial. The most famous of them was Carthage, itself a great colonizing state. From the distance of the mother states, and the slowness of communication, many of them must have been practically independent from a very early period; but this was not the case with the colonies of Carthage, which wielded powerful armies and maintained great fleets, both for commerce and for conquest. The Greek colonies were

widely spread, being numerous in Asia Minor, the Balkan peninsula, and the islands and coasts of the Mediterranean, in South Italy, and Sicily. They were commonly independent, and frequently soon surpassed the mother states in power and importance. Constantinople, Naples, Palermo, and Marseilles were all originally Greek colonies. The Greek civilization was largely based upon and highly favorable to individual liberty, and the independence of spirit which it fostered made political dissension a frequent cause of colonization. A still more pressing one was the limited extent of the Greek territories, and the inviting character of those by which they were surrounded. Rome was a state which left nothing to the individual. Its colonies were chiefly military, and while the empire lasted were all in strict subordination. As the Roman power declined the remains of them amalgamated with the peoples among whom they were placed, and contributed largely to the homogeneous growth of modern civilization.

Before America and the way by sea to the East Indies were discovered, the states of Europe in the Middle Ages, with the exception of the Genoese and the Venetians, had no foreign colonies. The intercourse and wars of the Portuguese with the Moors, then more advanced in civilization than most of the European nations, served to incite their rivalry and stimulate them to maritime enterprise, and they became the pioneers of Europe in maritime discovery. One of the chief names in this connection is that of Henry the Navigator, son of John I., of Portugal. The Portuguese in 1419 discovered Madeira; in 1431–60 the Azores; in 1487 Bartolomeo Diaz doubled the Cape of Good Hope; and on 1498, May 20, Vasco da Gama landed near Calicut on the Malabar coast, after a voyage round the South of Africa. The Moors had previously been in possession of the inland trade of India, and it was not without a struggle that the Portuguese succeeded in establishing settlements on the coast of Malabar. The first Portuguese colonies were garrisons placed along the coasts of the continents and islands they visited for the security of their commerce, as Mozambique, Sofala, and Melinda on the east coast of Africa, Ormuz and Muscat, in the Persian Gulf; Goa, Diu, and Damao, on the Malabar coast of India Goa became the capital of their Indian dominions. Colonies were established in Ceylon in 1505; in the Moluccas in 1510; Java, Sumatra, Celebes, and Borneo were also colonized, though the settlements there did not attain so great importance The direction taken by the Portuguese navigators made them miss the discovery of America; but Brazil was discovered by Cabral in 1500, May, a few months after Pinçon, and was colonized by the Portuguese about 1530. The splendid colonial empire of which the foundations were thus laid was not destined to last. As in the case of Spain the energy of the Portuguese was trammeled by climatic and other conditions, and this, together with a despotic colonial policy, had weakened the power of Portugal before she fell in 1580

under the dominion of Spain. The colonial possessions of Portugal were afterward assailed by the Dutch as enemies of the Spaniards, and when she recovered her independence in 1640, many of them were irretrievably lost. Brazil declared its independence in 1822. The colonial possessions of Portugal are now mostly in Africa; the whole of her possessions in that continent embracing an area of more than 5,000,000 square miles.

Soon after the Portuguese the Spaniards commenced the work of colonization. On 1402, Oct. 12, Columbus discovered the island of San Salvador. Hayti, or San Domingo, named by Columbus Española, was discovered in the course of the same voyage, 1492, December, and immediately colonized. Porto Rico and Jamaica were colonized in 1509, Cuba in 1511. On the mainland a Spanish settlement was effected in Colombia (New Granada) in 1510. Mexico was conquered 1519–21; Ecuador, Venezuela, New Granada, Peru, and Chile, were occupied and subdued between 1524 and 1541; and Spain was raised to the first rank among the colonizing powers of Europe. The Spaniards regarded their new possessions in various aspects. Some, animated by a zeal for religion, considered the conversion of the natives as the great end which Heaven had assigned to them. Others were inspired by the love of glory or the passion for gain, and scrupled at no means by which it was possible to gratify their wishes. Owing to the degraded character of many of the first colonists, who were often mere adventurers and released criminals, the first settlements suffered much from internal strife and confusion. After many dissensions the government of the colonies, in its fundamental traits, was settled in 1532, during the reign of Charles V. A council of the Indies in Europe, viceroys, at first two, afterward four, together with eight independent captains-general in America, were heads of the administration. Cities were founded at first along the coasts, for the sake of commerce and as military posts; afterward also in the interior, especially in the vicinity of the mines; as Vera Cruz, Cumana, Porto Bello, Carthagena, Valencia, Caracas; Acapulco, and Panama, on the coast of the Pacific; Lima, Concepcion, and Buenos Ayres. The whole ecclesiastical discipline of the mother country was transferred to the colonies, except that in them the church was much more independent of the king. The intercourse with Spain was confined at first to the single port of Seville, afterward to that of Cadiz, from which two squadrons started annually So, although commerce was not expressly granted by law to a society, it remained nevertheless entirely in the hands of a few individuals. Spain took possession of the Philippine Islands in 1564, and a regular intercourse was maintained from 1572 by the South Sea galleons, between Acapulco and Manila; but owing to the great restrictions on commerce those islands, notwithstanding their advantageous situation, were an expense to the crown. Spain proved to be the foremost of the colonizing powers of Europe in re-

spect to the formation of new states; the most unfortunate of all in regard to the retention of her possessions. The causes of the loss of her colonies differed from those which prevailed in the case of the Portugese. European wars and the decline of her home power were the most important, but they did not so often lead to the colonies falling under other powers, as in the case of Portugal. They more frequently became the occasion of revolt, and the opportunity for declarations of independence on the part of the colonies themselves. Thus were formed the republics of Mexico, of Central America, of Venezuela, New Granada or Colombia, Ecuador, Peru, Bolivia, Chile, etc.; but as the weak government of the mother country served to promote this early defection, few of the states formed in this unfortunate school have yet attained the repose of settled government. An insurrection began in Cuba in 1895, and after Spain had in vain endeavored to suppress it the United States interfered. War followed, with the result that after a brief struggle not only Cuba, but also Porto Rico and the Philippine Islands were lost to Spain.

The Dutch, during the struggle for their independence, first became the formidable rivals of the Portugese, then subject to the Spanish yoke. They had already for some time carried on the trade in East India merchandise between Lisbon and the rest of Europe, but their intercourse with Lisbon was prohibited by Philip II. in 1584. The prohibition was revived in 1594 with the utmost severity, and a number of Dutch vessels in the harbor were seized. Excluded from the European trade in the productions of India, they resolved to import directly from India the articles which were refused to them in Europe. Companies were formed, which were united into one by a charter granted 1602, March 20, to the Dutch East India Company, established in 1595. This charter, which was renewed afterward at different times, conferred not only the monopoly of the East India trade, but also sovereign powers over the conquests which the company should make, and the colonies which it should establish in India. An entirely new colonial policy was thus introduced, which instead of political or ecclesiastical aggrandizement, contemplated mercantile advantage as its main object. The Dutch colonies in the East Indies were thus commercial colonies; and the islands of the Malay Archipelago, being more easily defended than the continent of India, became the principal seat of the Dutch power. This was undoubtedly the chief cause of their colonies being so long in a flourishing condition, as they required only the dominion of the sea to maintain them. In 1619 the newly built Batavia was made the capital of the Dutch East Indies. About the middle of the 17th century the power of the Dutch reached its highest point. They effected the establishment of a colony at the Cape of Good Hope in 1650, which afforded an excellent bulwark for their East India possessions, and took Ceylon from the Portuguese, after a long and sanguinary struggle in 1658. All the

Dutch colonies in the East Indies were under the governor-general of Batavia. In 1621 the Dutch also established a West India Company, which at first made extensive conquests in Brazil, but soon lost them entirely (1623-60). Their settlements on some of the smaller West India Islands, as San Eustatia, Curaçoa, Saba, and San Martin (1632-49), were more permanent. On the continent Surinam, Paramaribo, Essequibo, and Berbice were in the hands of the Dutch in 1667. In North America the Netherlands held the valley of the Hudson, and pushed south at the expense of the Swedes, winning the present states of New Jersey and Delaware, only to lose them to England. The decline of the Dutch colonial power, partly caused by European wars and partly by the successful rivalry of the English, continued from the end of the 17th century till the French Revolution. On the recovery of its independence, the commerce and the colonial importance of Holland somewhat revived, and though many of her colonies were lost, the value of the remainder was enhanced by improved administration. The Dutch still possess numerous colonial possessions in the East Indies, including Java, Sumatra, parts of Borneo, the Moluccas, and part of New Guinea; several small islands in the West Indies, and Surinam.

No colonizing power has had a career of such uniform prosperity as Great Britain. The freedom of her institutions, and the practical enterprise and self-reliance of her people peculiarly fitted her for the work of colonization, and it has steadily advanced with her equally in peace and in war. Her insular situation freeing her from the ambition of direct territorial aggrandizement, and giving her the command of the seas, enabled her in every war to strip her opponents of colonial possessions which were not unfrequently retained as the price of peace. The only break in a career of prosperity which has resulted in the formation of an empire greater in extent of territory and of population than any other known to history was the revolt of her American colonies, which resulted in the formation of a state destined ultimately to rival Great Britain herself in political and commercial importance and in the freedom of its institutions. This state, too, by the successful result of the war of 1898 with Spain, itself entered on a policy of colonial expansion.

The English made their appearance as a colonial power nearly at the same time with the Dutch, but at first with far inferior success. After many fruitless attempts to find a northeast or northwest passage to the East Indies, English vessels found their way round the Cape of Good Hope to the East Indies in 1591. In 1600 Elizabeth granted a charter to the East India Company. Its commerce with India, however, was not at first important. It established only single factories on the continent, and at the beginning of the 18th century the possessions of the English in the East were limited almost exclusively to Madras, Calcutta, and Bencoolen. The ruin of the

Mogul empire in India, which commenced in internal disturbances after the death of Aurengzebe (1707), and was completed by the incursions of Nadir Shah (1739), afforded the opportunity for the growth of British power, as the British and French were compelled to interfere in the contentions of the native princes and governors. The French, under Labourdonnaye and Dupleix, appeared at first likely to maintain the superiority; but the British succeeded in acquiring the ascendency in the Carnatic; and in the middle of the 18th century they greatly extended their dominions under Clive. By the destruction of Pondicherry they secured their superiority on the coast of Coromandel; and the victory of Clive at Plassey, 1756, June 26, laid the foundation of their exclusive sovereignty in India. By the Treaty of Allahabad, 1765, Aug. 12, Bengal was surrendered to the British by the titular Great Mogul; and the fall of the empire of Mysore, the dominions of Hyder Ali and Tippoo Saib, may be considered as completely establishing the British supremacy in India. The Mahrattas, with whom the British waged war at intervals from 1774 to 1818, and the Sikhs, subdued in 1849, were the last formidable enemies of the company. With the exception of a few dependent states the British territory now embraced nearly the whole of India, and this vast territory was still under the government of a chartered mercantile compay, exercising many of the most important functions of an independent sovereignty. On the suppression of the Indian mutiny (1857-8) this state of things was deemed too hazardous to last, and the government of India was transferred to the crown by act of Parliament in 1858. Ceylon was first occupied in 1795-6.

The discoveries of the Cabots, following soon after the voyages of Columbus, gave the English crown a claim to North America, which in the reign of Elizabeth led to a colonization on a large scale. In 1606 James I. divided the territory claimed by England into two parts—South Virginia, extending from Cape Fear to the Potomac; and North Virginia, from the mouth of the Hudson to Newfoundland. Two companies were formed for the colonization of America—the London Company, to which was granted South Virginia; and the Plymouth Company, to which was granted North Virginia. The region between the Potomac and the Hudson was neutral ground. The London Company in 1607 founded the commonwealth of Virginia by building Jamestown on the James River, so called in honor of the king. A House of Burgesses for the new colony met for the first time 1619, June 19, and thus was constituted the beginning of representative government in the British colonies of America. In 1614 Capt. John Smith, having examined the coast from the Penobscot to Cape Cod, named the country here New England. The next permanent settlement on the North American coast was effected in this district by the body of Puritans, known as the Pilgrim Fathers, who sailed from England 1620, Sept. 6, in the Mayflower, and arrived

November 9 in Massachusetts Bay. The government of this colony was that of a religious oligarchy. Another colony was established in New Hampshire in 1623, and in the same year Maine, which had previously been colonized by the French, received its first permanent English settlement. New Jersey was colonized in 1634. Connecticut was colonized in 1635 by emigrants from Massachusetts. Rhode Island was settled in 1636. Samuel Champlain, the French navigator, was the first European who entered the region now forming the State of New York (1609). In the same year Henry Hudson, an Englishman in the service of the Dutch East India Company, discovered the river to which his name has been given, where Dutch settlements were effected and gradually spread. The English, who claimed this territory as included in Cabot's discoveries, finally seized the Dutch colony of New Amsterdam by force in 1664, giving it the name of New York in honor of James, Duke of York (James II.), to whom Charles II. had made a grant of the province. In 1681 the territory west of the Delaware was granted to William Penn, who colonized it with Quakers, and founded Pennsylvania in 1682. The first settlement in Maryland was made in 1631 by a party from Virginia. In 1633 a colony of Roman Catholics arrived here from Great Britain. The country south of Virginia was permanently settled in 1670 by a party of English colonists who landed at Port Royal and afterward removed to Charleston. The colony was called Carolina. Georgia, originally a part of Carolina, was granted by George II., after whom it was named, to a colony from England in 1732.

Colonies were early established in the West India Islands, including Barbados, half of St. Christopher's (1625), and soon after many smaller islands. Yet the West India possessions did not become important as plantations until the sugar-cane was introduced into Barbados in 1641 and into Jamaica in 1660. This island had been taken from the Spaniards in 1655. The cultivation of coffee was introduced into the West India Islands in 1732. Newfoundland was taken possession of by the English in 1583, and colonized in 1621 and 1633. Canada was surrendered by France to Great Britain at the Peace of Paris in 1763 (see section on French colonies below). In 1764 began the dispute between Great Britain and its North American colonies, on the question whether the former had the right to impose taxes on the colonies when they were not represented in the British Parliament; and on 1775, April 19, commenced the war which terminated with the acknowledgment of the independence of the 13 provinces. Though the United States thus entered on their independent career, Canada still remains as a great and flourishing British dependency.

Australia was discovered in the beginning of the 17th century. The first Australasian settlements of Great Britain were penal colonies. New South Wales, dis-

covered in 1770, was established as a penal colony in 1788; Tasmania (Van Diemen's Land), discovered by Tasman in 1742, followed in 1803. West Australia, for some time a penal settlement, was founded as a free colony in 1829; Victoria (Port Phillip) was colonized in 1835, and made an independent colony in 1851; South Australia was settled in 1836; Queensland became a separate colony in 1859; New Zealand, discovered by Tasman in 1742, began to be used in connection with the whale fishery about 1790, was settled in 1839, and made a colony in 1840. In 1851 gold was discovered to be plentiful in Victoria. This gave a great impetus to the prosperity of the Australian colonies, and the influx of population it caused has largely contributed to promote their general development. A federal union of the British colonies in Australia was proclaimed 1901, Jan. 1, with the title of the Commonwealth of Australia. The Fiji Islands became a colony in 1874, and other islands in the Pacific have been acquired since, as well as part of New Guinea and part of Borneo.

The acquisition of the South African colonies dates from the Napoleonic period, the Cape Colony and Mauritius being both secured to Great Britain in 1814. Natal was proclaimed a British colony in 1843. The Guinea Coast settlements date from the 17th century. Extensive spheres of influence have been recently acquired, being partly developed by chartered companies.

In Europe Great Britain has only two possessions of the nature of colonies, acquired for military reasons: Gibraltar in 1704; Malta and Gozo, 1800.

It is estimated that the existing British colonies and dependencies embrace fully one-fifth of the land surface of the globe, and a rather larger proportion of its population. The whole of the British colonial possessions have been grouped in about 40 administrative divisions, and they are situated in every quarter of the globe. See GREAT BRITAIN.

According to their governmental relations with the crown the colonies are arranged under three heads: (1) Crown colonies, in which the crown has the entire control of legislation, while the administration is carried on by public officers under the control of the home government; (2) colonies possessing representative institutions, but not responsible government, in which the crown has no more than a veto on legislation, but the home government retains the control of public officers; (3) colonies possessing representative institutions and responsible government, in which the crown has only a veto on legislation, and the home government has no control over any officer except the governor. All colonies are, however, disabled from such acts of independent sovereignty as the initiative in war, alliances, and diplomacy generally.

France was somewhat late of entering fully upon a colonial career, being retarded by internal dissensions and religious wars. Between 1627 and 1636 Pierre Belain

d'Esnambuc colonized St. Christopher's, Guadeloupe, and Martinique. Champlain was the pioneer of the French in the exploration of the North American continent, where they soon had considerable possessions, including Canada—in which they had settlements as early as 1604-5, and where Champlain founded Quebec in 1608—and Louisiana colonized in 1699. Commercial companies were then deemed essential in colonizing, and a West India Company and an East India Company were established by Colbert in 1664. He purchased on several West India Islands, as Martinique, Guadeloupe, St. Lucia, Grenada, and others, settlements already formed by private persons, and sent out colonists in 1664 to Cayenne. But the settlements in part of St. Domingo, by the buccaneers, became of more importance than those effected by the government. The West India Company survived only 10 years. The East India Company, after fruitless attempts to form a colony in Madagascar, founded Pondicherry on the Coromandel coast in 1670. This became the capital of extensive French possessions in the East Indies. The French also acquired the Isle de France (Mauritius) and Bourbon (Réunion), occupied in 1720. At the beginning of the 18th century France had attained an important position as a colonial power. In North America her settlements extended from Canada to California, particularly along the Great Lakes and the Mississippi River, embracing many districts which have since become of the highest importance. Nova Scotia (Acadie) and Newfoundland (Terre Neuve), which had been disputed with Great Britain, were then in her possession. Her West India Islands were more flourishing than those of England, and she still had a prosperous career before her in India. The superiority of the fleet of England gave that power a great advantage in colonial contests, and many of the French colonies subsequently fell under the power of Great Britain. The struggle for the supremacy in India, though France was finally unsuccessful, was long and gallantly maintained, and more than once seemed to promise a different issue. The North American colonies were partly lost by conquest and partly suffered to fall into decay. Of the West India possessions several were taken by Great Britain, and finally ceded to her. Canada was finally ceded to England in 1763; Louisiana, after being surrendered to Spain, to prevent it from falling into the hands of the English, was sold by Napoleon to the United States in 1803. At the general pacification of 1815 France recovered some remains of her colonial possessions, and since then she has acquired extensive regions beyond sea, some of them highly valuable. She occupied in 1830 and begun in 1833 to colonize Algeria, a country whose irregular and lawless government had exposed her as well as other European states to frequent annoyance. Tunis, Senegambia, great tracts of the Sahara, Sudan, and Congo regions, the islands of Madagascar and Réunion, are all comprised in France's African

possessions, while in Asia she possesses a large portion of the Indo-Chinese peninsula, and in America French Guiana. Some of the French colonies are represented in the National Assembly by members chosen for the purpose.

Denmark established an East India Company in 1618 with a view to enter on the colonial trade; and other companies were afterward formed. In the same year with the formation of the first company, the colony of Tranquebar was founded on the Coromandel coast. Its success was fluctuating, like that of the companies formed to manage it, and at last, in 1845, it was sold to the East India Company. St. Thomas in the West Indies was settled by the Danes in 1672; St. John and some of the smaller islands in the same group (the Virgin Islands) were also occupied by them. The island of Santa Cruz was purchased from France in 1733. The United States tried to buy these islands in 1902. Sweden established an East India Company in 1741. She acquired the island of St. Bartholomew from France in 1785, but restored it in 1878, and has now no colonies.

Germany has recently been making some attempts at establishing colonies in different parts of the world, and in this way acquired considerable tracts in southwest Africa, east Africa, between the Portuguese and British possessions, Camerun, Togo, New Guinea, etc. Italy has also shown the same ambition, and has established a colony on the African side of the Red Sea, between it and Abyssinia, and in Somaliland.

The colonial policy of paternalistic countries as Spain and Portugal naturally differed from that of commercial and industrial nations like England and Holland. In the former the expense and risk of colonizing was borne by the government, who retained direct control over the colonies and their productions; but in the latter the work, being too much for individual enterprise, was entrusted to companies, whose charters conferred on them not only exclusive privileges in regard to trading, but also extensive powers of conquest and administration. In respect to trade a very exclusive and jealous policy long prevailed, but since the adoption of a free-trade policy in Great Britain, the whole trade of her colonies has been thrown open without reserve, as far as the privileges of the mother country are concerned, to the competition of foreign nations. Other countries, while not following her commercial policy entirely, have relaxed more or less the stringency of the regulations affecting their colonial trade. Consult: Leroy-Beaulieu, *De la colonisation chez les peuples modernes* (Paris, 3d ed. 1887).

COLOPHON, n. *kŏl'ŏ-fon* [Gr. *kol'ophōn*, summit, finishing-stroke]: Ionian city of Asia, about nine m. n. of Ephesus, near the sea-coast. It claims to be the native city of Homer. The Greek proverb, 'to put the colophon to it,' meaning to terminate an affair, is said to have originated in the boast of the famous Colophonian cavalry, that their *charge* was usually the finishing stroke in battle.

Hence, in old printed books, the conclusion, in which were stated the name of the author, and the place and year of printing, was called a colophon.

COLOPHONY, n. *kŏl'ŏ-fŏn-ĭ* [first brought from *Colophon* in Ionia: Gr. *kolophōnĭă*]: a dark-colored resin obtained from turpentine: see ROSIN, CHEMISTRY OF: RESINS. COLOPHONITE, n. *kŏl'ŏ-fŏn-īt*, one of the varieties of iron-lime garnet which have a resinous lustre.

COLOQUINTIDA, n. *kŏl'ō-kwĭn'tĭ-dă* [the Latinized form of the F. *coloquinte*, colocynth]: the bitter globular fruit, the pulp of which constitutes the medicinal colocynth; used in Shakespeare for COLOCYNTH (q.v.).

COLOR, n. *kŭl'ėr* [Norm. F. *colour;* and *colur*—from L. *colōrem*, color: F. *coleur:* It. *colore*]: the hue or appearance that a body presents to the eye; dye or tinge; anything used to give or impart color to a body; a paint; appearance to the mind; false show. COLORS, n. plu. *-ėrz*, flags, standards, or ensigns, which serve in the army as rallying points for infantry: V. to alter or change the outward appearance of any body or substance; to tinge; to dye; to give a specious appearance to; make plausible; to blush; to change from pale to red. COL'ORING, imp.: N. the art of dyeing; a specious appearance; the manner of applying colors. COL'ORED, pp. *-ėrd:* ADJ. showing color; of African descent. COL'ORER, or COL'ORIST, n. one who. COL'ORABLE, a. *-ă-bl*, specious; plausible. COL'ORABLY, ad. *-blĭ*. COL'ORLESS, a. destitute of color; transparent. WATER-COLORS, colors mixed with gum-water or a size, and not with oil. COLORIMETER, *kŭl-ėr-ĭm'ĕ-tėr* [L. *color;* Gr. *metron*, a measure]: an instrument for measuring the depth of color in a liquid by comparison with a standard liquid of the same tint. COLOR-GUARD, in infantry, a guard of seven corporals with the color-sergeant in each regt., whose place is at the left of the right centre company in the line. COLOR-PARTY, the two officers carrying the colors, together with four sergeants. COLOR-SERGEANT, a non-commissioned officer in each company of infantry who is responsible to the captain for its interior economy; his rank is higher and his pay better than those of ordinary sergeants to whose duties he adds that of attending to the colors. PRIMARY COLORS (popularly) red, blue, and yellow—(according to recent scientific investigation) red, green, and violet. PRISMATIC COLORS, violet, indigo, blue, green, yellow, orange, red. COLORED-FIRES, compositions, generally based on powder or its components, used in pyrotechny for making ornamental fire-works, known as *lances, stars, lights, wheel-fires, sun-fires*, etc.: see PYROTECHNY.—SYN. of 'color, v.': to dye; tinge; stain; paint;—of 'color, n.': hue; paint; tint; pigment.

COLOR, in Art: either the pigment employed to produce a certain effect to the eye, or the effect thus produced, i.e., the tint of a picture. For color in the former sense, see the titles of the respective colors: CARMINE, CHROME, etc. In the latter sense color must be regarded by the artist not

so much as the result of the application of one or more pigments separately as of their use in the innumerable combinations of which they admit.

Recent investigation tends to regard as simple or primary colors *red, green* and *violet.* It is found impossible to resolve red, green, and violet (or blue) light into any other colors; whereas a yellow ray may be resolved into red and green, or compounded by mingling red and green light. But in popular acceptation, as in the scientific works of Brewster and others, the primaries are *red, blue,* and *yellow:* see CHROMATICS: SPECTRUM: LIGHT: etc. Compounded in various proportions, pigments of the three last-mentioned colors produce every tint that is physically possible, and in this respect may still be called primary. First, when combined in twos, they produce the three colors usually termed *secondary*—that is to say, blue and red make purple or violet; yellow and red, orange; blue and yellow, green. The grays and browns, again, are compounds of all three of the primary colors.

COMPLEMENTARY COLORS are the colors or color which, with any color or colors mentioned, make up the three primary colors that constitute white light. Thus, if the given color be a primitive, its complementary color is composed of the other two primitive colors; e.g., the complementary color of blue is orange = red and yellow. Again, if the given color be a secondary, its complementary color is the remaining primitive color. Thus, the complementary color of green—blue and yellow—is red.

CONTRAST OF COLOR is either simple or compound. Each of the primitive colors forms a simple contrast to the other two. Thus, blue forms a simple contrast to red and to yellow. But if red and yellow be mixed together, the complementary color to blue will be produced—viz., orange, which is the most powerful contrast that can be made to blue.

HARMONY OF COLOR consists in the preservation of the same character in a picture throughout, so far as coloring is concerned. It is said to result from an equal distribution of the three primary colors, either pure or in composition; but such a rule, even if correct, is correct with so wide a latitude as scarcely to admit of practical application. The only method of attaining to a knowledge of harmony of color, is to train the eye by the observation of it as exhibited in nature. A southern sky will be found to harmonize with a southern landscape, and, consequently, the colors of which the one is composed with those which compose the other. The experiment may be made by painting an Italian sky over an English landscape, when the want of harmony in the coloring will be at once apparent. The art of preserving harmony without sacrificing variety, resembles that of preserving light in shadow, and combining clearness with depth. See CHIAR-OSCURO.

WARM AND COLD COLORS are terms derived from the corresponding sensations which they are supposed to produce. Blue is said to be a cold color, and orange a warm

one, whereas red is neither warm nor cold. Without supposing color blindness, however, it seems very possible to imagine that in this respect the same color may, from association and other causes, produce different sensations on different persons.

A COLORIST is an artist in whose works success in color is the prominent excellence. The greatest colorists are Titian, Correggio, Paul Veronese, Rubens, and perhaps his pupil, Vandyck. To say that these artists surpass Raphael, or even Leonardo da Vinci, in this respect, would probably be to say too much. But that they equal these greater artists in this, and in this respect alone, is a sufficient reason for their being known as colorists *par excellence*. The art of coloring admits of being transmitted to pupils to a greater extent than the highest branch of all.

COLOR, in Heraldry: generally—red, blue, black, green, and purple; which are called gules, azure, sable, vert, or sinople and purpure. Tenne or tawny, and sanguine or blood-color, sometimes occur, but they are not common. Yellow and white are not colors in the heraldic sense, but metals; they are called or and argent, and are represented always by gold and silver. It is a fundamental and invariable rule in blazon not to put color upon color, or metal upon metal; thus, if the field be of a metal the bearing must be of a color, and *vice versâ*. The only exception is said to be the arms of Jerusalem, which were given to Godfrey of Bouillon, which are *argent, a cross potence or, between four crosslets of the same*. Apparent exceptions to this rule in common blazon are—1. Abatements or marks of cadency or difference, labels, crescents, batons, and the like; and 2. Extremities or adjuncts to animals, or other objects, such as tongues, claws, horns, etc.; but neither of these are regarded as independent bearings. Colors and metals, when engraved, are generally indicated by dots and lines: *or*, gold by dots; *argent*, silver, is left plain; *gules*, red, is indicated by perpendicular lines from top to bottom; *azure*, blue by horizontal lines from side to side; *sable*, black, by horizontal and perpendicular lines crossing each other; *vert*, by diagonal lines from right to left; *purpure*, by diagonal lines from left to right; *tenne*, by diagonal lines from left to right, crossed by horizontal lines; and *sanguine*, by lines crossing diagonally from left to right, and from right to left.

COL'OR, in Optics: see LIGHT: CHROMATICS: SPECTRUM.

COLOR: rhetorical term, adopted into the technical language of English pleading, in suits of confession and avoidance; meaning an acknowledgment of at least some apparent right—some *color* of right—in the opposite party. This curious subtilty was set aside by common law procedure act of 1852.

COLORADO, *kŏl-o-râ'dō*: a state, one of the United States of America, the 38th in the order of admission into the Union, and popularly known as the 'centennial state' from the date of its admission, 1876.

COLORADO.

Location and Area.—Colorado is about midway between the Mississippi river and the Pacific slope, and nearly an equal distance between British Columbia and Mexico; or between lat. 37° and 41° n., and long. 102° and 109° w. It is almost a parallelogram in shape, having a direct surface line e. and w. of about 380 m., and n. and s. of 280 m.; and is bounded on the n. by Wyoming Terr. and Nebraska, e. by Nebraska and Kansas, s. by New Mexico and Indian Terr., and w. by Utah. Authorities differ greatly as to its area, ranging in acres 60,000,000–68,000,000,and in sq. m. 103,465—106,475; but the U. S. census (1900) estimated the acreage at 66,332,800, equivalent to the first mileage above given. It was estimated, 1902, that over 4,000,000 acres still remained unsurveyed. Colorado is divided into 57 counties.

Surface.—Nearly two-thirds of the state is occupied by mountain ranges, averaging 120 m. wide by 140 m. long., and the remainder is divided between foot-hills and plains. The e. portion comprises a part of the plains that was long known as the 'Great American Desert;' the central and w. portions embrace three parallel ranges of the Rocky Mountains which run n. and s. through the state, and yield a mineral wealth of value yet unknown. These ranges are here distinguished by their numerous lofty peaks. The foot-hills have an average elevation of 8,000 ft. above sea level, and the plains of 6,000. Separating the waters of the South Platte and the Arkansas rivers is the 'divide,' also a considerable elevation. The land slopes from the top of the divide toward Denver northerly and toward Colorado Springs southerly. The streams, E. and W. Cherry creek, and others run n. to Denver and into the Platte; those on the s. slope, being tributaries of the Arkansas s. of Colorado Springs, run south. The best land on the divide comprises 12 sq. m., and is the only land in Colorado that can be cultivated surely without irrigation. The divide is like a double-pitch roof; more rain falls there than elsewhere in the state; and there is an abundance of streams and creeks; hence it is almost if not quite without a rival as a grazing region. Colorado is watered by the Arkansas and the S. Fork of the Platte rivers on the e., by the Bear, Bunkara, and Gunnison on the w., and the Rio Grande on the s., besides the Rio Colorado and the Grand, Green, and other streams that unite to form it.

The Peaks.—The extreme elevation of the mountain ranges, their wild beauty, and picturesque parks which they inclose constitute this the wonderland of the American continent. The highest peak is that of Mt. Lincoln, first seen from the railroad train going from Kansas City, Mo., to Denver, and from it may be seen 200 peaks, each, nearly 13,000 ft. high, and 25 of 14,000 ft. and over. Of the three ranges the first or e. is known as the Colorado range, the second or centre as the Park range, and the third or w. as the National range. The first extends from Pike's Peak some distance beyond Long's Peak, or about 120 m., and has six peaks over 14,000 ft. in height, Long's,

1. Pike's Peak Avenue and the Antlers, Colorado Springs.
2. The Dutch Wedding, Monument Park.

Gray's, Pike's Mt. Torrey, Mt. Rosa, and Mt. Evans. The second has Mt. Lincoln, 15,000 ft. high and capped with perpetual snow. Quandary Peak, over 14,000, and 20 others over 13,000. The third, about 16 m. w. of the second, has an altitude of 13,000 ft. for a stretch of 50 m.; the principal summits are Mt. Elbert, Mt. Harvard, Mt. Yale, and Mt. La Plata; there are 10 peaks between 14,000 and 14,500 ft. high; the Mt. of the Holy Cross, of which Thomas Moran made his most noted painting, is 13,500 ft. high, and Grand Mountain 14,200.

The Parks.—While the mountain system sparkles everywhere with the most startling beauties, the natural parks lavishly scattered over the area of Colorado have pre-eminent magnificence. Favored by their enormous dimensions and screened by an uninterrupted envelope of primary mountain edifices, the climatic elements happily blended, they have a perpetual vernal temperature, intense serenity, and a singular beauty. The four main parks, the North, South, Middle, and San Luis, lie between the first and second ranges. The North and South parks, opening toward the Atlantic, are accessible by the channels of the two Plattes and the Arkansas rivers; the Middle and San Luis, sending their waters to the w., are milder in temperature and larger in area than the others. The South is the most extensively occupied; the North, adjacent to and accessible from the line of the Union Pacific railroad, receives attention and population from that direction; the Middle immediately fronts Denver, and is the nearest in locality; and the San Luis, larger than the other three combined, is noted for its mining industry, food production, and great pasturages. Everything in this region is gigantic. In dimensions the South park is 60 m. long by 30 m. wide, area about 2,200 sq. m., with a varying elevation 9,000—10,000 ft.; the North park has an area of 2,500 sq. m., and an elevation of nearly 9,000 ft.; the Middle park, stretching 65 m. n. and s , and 45 m. e. and w., contains Long's Peak, Gray's Peak, and Mt. Lincoln; area 3,000 sq. m., general elevation 9,000 ft.; and San Luis park, an immense elliptical basin, enveloping the sources of the Rio Del Norte, is 210 m. long by 100 m. wide; area variously estimated 10,000—18,000 sq. m., and an elevation under 7,500 ft. In these parks the abundance and variety of hot springs of various temperature is very great. They have also waters of medicinal virtues. Fish, water-fowl, and birds of game, song, and brilliant plumage, frequent the streams and groves, and animal life seems measureless in quantity and abundant in variety. Besides these parks, the Garden of the Gods, 4 m. n.w. of Colorado Springs, with an area of 500 acres, and Monument Park, 8 m. from Colorado Springs, present many unique attractions to the tourist.

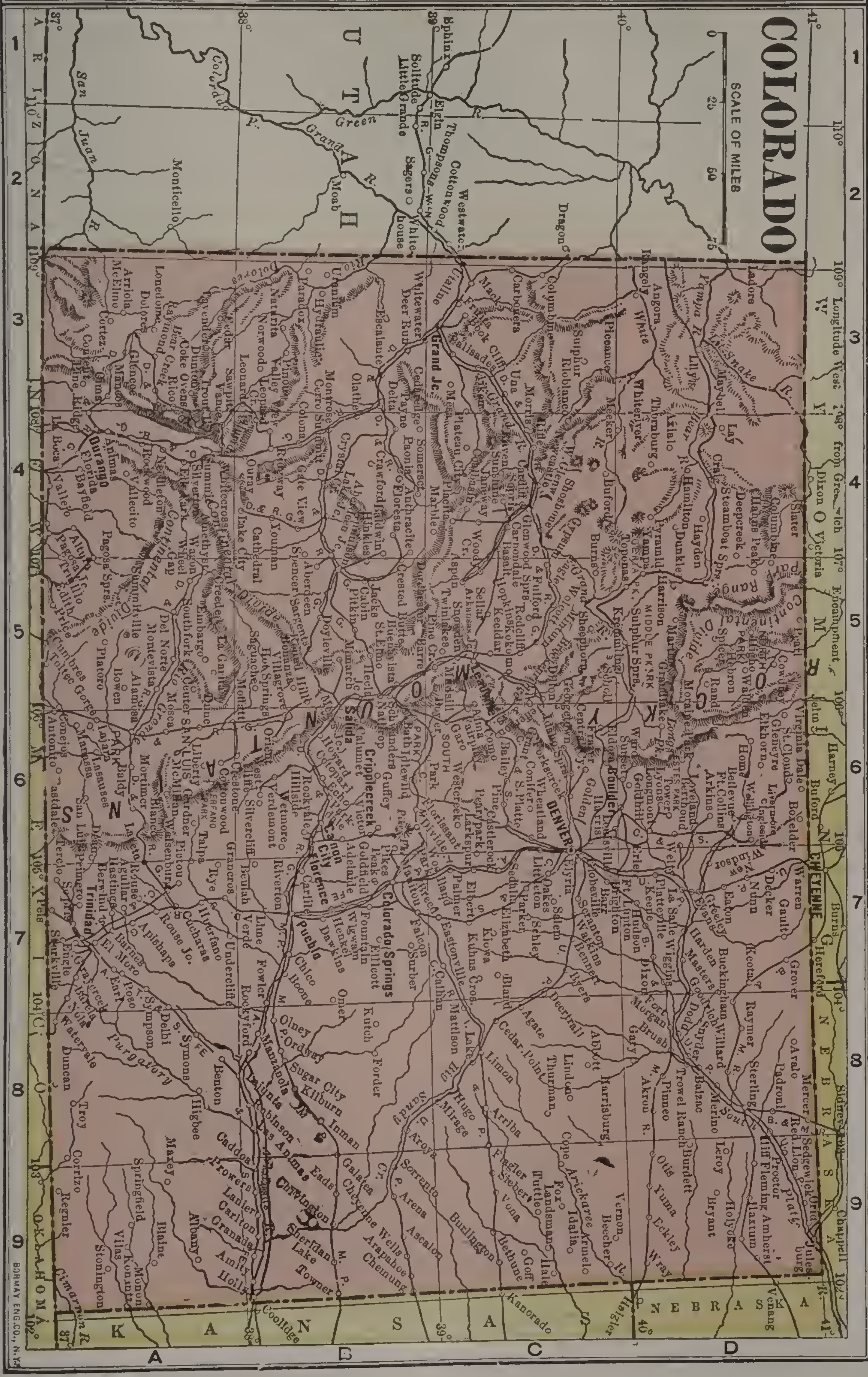
Climate.—Colorado has a notably equable climate. The air is drier, and the range of temperature decidedly less than in the eastern states in the same latitude. The winters are mild, excepting

on the mountains, and the summers cool and invigorating; and the mildness and purity of the atmosphere on the plains and in the valleys render C. the paradise of invalids. Consumption in its early stage may be cured there, as well as hay-fever, while rheumatism, gout, asthma, and a number of throat and lung diseases may be greatly ameliorated. The mean annual temperature is about 49° F., and the rain-fall, usually confined to the spring months on the plains, ranges from 15 to 20 inches per year. Rain storms, cloudy weather, mists, and fogs are almost unknown, but heavy wind storms are common. The coldest months are Nov. and Dec., and the greatest falls of snow, on the mountains, occur in Sep., Oct., and Apr. In the valleys and on the plains the snow-fall seldom exceeds a foot in depth and soon melts, but many of the peaks wear a perpetual crown of snow. The thermometer seldom falls below zero in the foot-hill and plain regions, and even in midwinter there are days in which the weather is similar to that of a n. summer.

Mines and Mining.—Both in gold and silver production C. ranks first among the States of the Union. For several years while C. was a Territory strenuous efforts were made to gain its admission to statehood, and the memorials were accompanied by numerous statistics, all of which showed a marvelous wealth of local industries. A more than usually determined effort was made in 1873, but the movement was at that time defeated by the passage of an act of Congress requiring a population of at least 125,000 in the Territory prior to admission. The statistics of that year are of much value in view of the wealth of C. and its subsequent growth, particularly in its resources in precious metals. The total deposits of gold which had been made at the branch mint at Denver up to 30 June, 1873, amounted to $6,357,275, of which $5,761,487 represented the product of C.; while the returns from the U. S. mint, branch, and assay office on account of C. bullion amounted to $20,574,914, the deposits of the preceding fiscal year being $1,167,598. If the deposits were reckoned at one-third the total product of the mines, the total yield of gold in the Territory to that date would aggregate more than $60,000,000. The deposits of silver in the various government offices on account of C. during the same period amounted to $1,584,090, the actual development of the prominent silver lodes dating from 1867. Ten years later C. yielded $4,100,000 in gold, and $17,370,000 in silver; (1884) $4,250,000 gold and $16,000,000 silver; (1885) $4,200,000 gold and $15,800,000 silver. Of later years the gold output for a single year has run up to almost $25,000,000, while the silver yield has approached $20,000,000. About one-half of this comes from Cripple Creek. The State's annual product of zinc is worth about $600,000, and the annual product of copper, amounting to about 4,000 tons, to approximately $2,000,000. The output of lead comes

Area in Square Miles, 103,925. Population, 539,700.

Number of Counties, 59. Capital of State. Denver.



chiefly from the Crede and San Juan districts, which have of later years replaced the Leadville district. The total lead output is in the vicinity of 85,000 tons a year. Coal and iron mining are meanwhile rapidly coming to the fore and assuming a more and more prominent place among the minerals of the State, while coke is also produced to an extent of about 500,000 tons annually. Besides these C. is rich in salt and sulphur, mercury and platinum, porcelain clay, marble and sandstone, natural gas, etc.

Agriculture.—Almost one-third of the farm-lands of the State, divided among 30,000 farms, are improved. Great increases have been made within the last decade, both in regard to the areas under cultivation and the crops produced, through an extensive irrigation system. The principal crops are corn, wheat, oats, barley, potatoes, and hay. The State excels as a grazing and dairy country, deriving great advantages from the peculiarities of its nutritive grasses, on which cattle thrive the year round.

Manufactures.—The principal manufactures of the state are flour and grist mill products, printing and publishing, cars and general shop construction, foundry and machine shop products, and slaughtering and meat packing, there being altogether about 2,000 manufacturing establishments in the state.

Finances and Banking.—The total assessed valuation of the state in 1910 was $414,885,770, the estimated debt $2,897,192.66, and the tax rate 4 mills. There are numerous private banks, besides well over 100 national and state banks.

Education.—The chief supervision of the public schools is vested in a board of education consisting of the superintendent of public instruction, who acts as president; the secretary of state, and the attorney-general. The general assembly is required to provide for the establishment and maintenance of a thorough and uniform system of public schools throughout the State, one or more having to be maintained in each school district for at least 3 months in the year in order to benefit from any appropriation of the school fund. The latter consists of the proceeds of such land as has been or may be granted to the State by the Government for educational purposes, as well as of other grants, gifts and devices made by the State for the purpose. The State has about 165,000 children enrolled in the public schools, where there are nearly 5,500 teachers. Besides these schools, there is a State University at Boulder, a college of agriculture at Fort Collins, a school of mines and engineering at Golden City, a State normal school at Greeley, a deaf and dumb institution at Colorado Springs, and a State reform school, as well as numerous private schools and colleges. The largest colleges are C. College, the University of Denver, and the Westminster University of C.

Charities and Corrections.—There is a State insane asy-

lum at Pueblo, a soldiers and sailors' home at Monte Vista, a state prison at Canon City, a reformatory and farm at Buena Vista, and an industrial school for juvenile offenders at Golden. Each of these has a board of control, under the general supervision of the State Board of Charities and Corrections, besides which there are numerous private institutions.

History.—It is believed that the records of Vasquez Coronado, who commanded an expedition from Sinaloa, Mex., 1540, furnish the earliest account of the region now covered by C. One portion formed a part of the La. purchase from the French, 1803, and the remainder was included in the Mexican concession, 1848. The U. S. govt. sent out an exploring expedition, 1806, under Zebulon M. Pike, who discovered the peak which has since borne his name; a second, 1820, under Col. S. H. Long, and the most important ones, 1842–44, under John C. Fremont. The s. portion of C. was settled first by Spaniards and Mexicans, and a few American hunters, trappers, and traders led nomadic lives there. Gold was first discovered in C., 1852, by a cattle trader at the mouth of the present Clear creek, and W. G. Russell led the first party organized for prospecting, and found gold on Dry creek, near the site of Denver, 1858. The first gold-bearing lode was discovered by John Gregory, 1859, May 6, in the present Gilpin co. The Civil War checked settlement somewhat, and the Indian War, 1864–5, with the Cheyennes and Arapahoes forced many of the settlements out of existence. When the Indians were finally subdued, immigration was resumed, and by 1870 there were 40,000 people in the territory. Though not serious, Indian outbreaks were frequent and by 1880 the Utes had ceded the last of the land which they held. The first step toward the organization of a form of govt. by the miners was the erection of Arapahoe co., with co. seat of Auroria. At an election, 1858, Nov. 6, a representative to the Kan. legislature, and the first delegate to congress were chosen. The latter was instructed to secure the separation of the mining district from Kan., and its erection into a territory. In the following autumn a convention was held at Denver, when a memorial to congress for a territorial form of govt. was adopted, and the district became C. Terr., 1860. At the close of the Civil War efforts were made to secure the admission of the terr. into the Union as a state, but failed repeatedly till 1875, when, Mar. 3, congress passed an enabling act. Under its provisions a convention assembled in Denver, and after a session of 86 days completed a state constitution, 1876, Mar., which was ratified by the people, July 1. Aug. 1, Pres. Grant issued a proclamation declaring C. to be a state in the Union, and it has since been known as the 'centennial state.'

Population and Principal Cities and Towns.—(1860) whites 34,231, colored 46, total 34,277; (1870) whites 39,408, colored 456, total 39,864; (1880) whites 191,892, colored 2,435, total 194,327; (1890) whites 405,983, colored 6,215, total 412,198; (1900) whites 531,130, colored 8,570, total 539,700; total (1910) 799,-024. In 1910 the most populous *counties* were Arapahoe, 10,263; Pueblo, 52,223; El Paso, 43,321; Teller, 29,002; Las Animas, 21,842; Boulder, 30,330; Lake, 10,600; Weld, 39,177; and Fremont, 18,181; and *cities and towns,* Denver, 213,381; Pueblo, 44,395; Colorado Springs, 29,078; Leadville, 7,508; Cripple Creek, 6,206; Boulder, 9,539; Trinidad, 10,204; and Victor, 4,986.

COLORADO, Rio—or Colorado of the West: great river formed at about 38° n. lat., and 110° w. long. by the junction of the Green and Grand rivers. The Green river rises in the Rocky Mountains in the w. of Wyoming territory, receiving in its s. w. course the waters of the Bear, the White, Uintah, and San Rafael. From Flaming Gorge, a point in the n. w. of Colorado, where the Uintah Mountains rise, the Green river cleaves its way rapidly through 'cañons,' the walls of which tower up to a height of nearly 1,500 ft. (Cañon, sometimes *canyon*, Spanish for tube, is now commonly used in the United States for deep ravines worn by running water.) The Grand river rises in the Rocky Mountains, w. of Denver, Colo., receiving in its s. w. course the South Fork or Gunnison, the San Miguel, and Dolores. After the junction, the C. flows s. w. through Utah, joined on the e. by the San Juan, on the w. by the Dirty Devil and Escalante; s. w. through the n. of Arizona, till its waters are increased by the Colorado Chiquito, or Little C. of Arizona. From the mouth of the Little C. the river bends w., and for the first 200 m. shoots through the wonderful 'Grand Cañon.' The walls of this water-worn trench are often vertical, or nearly so, for a distance of thousands of feet at a time; sometimes they slope steeply, or constitute magnificent terraces. The cliffs or rock-walls attain a height of from 4,000 to 7,000 ft. above the stream, which runs with a varying descent of from 5 to 200 ft. to the mile, and whose channel now contracts to 30 ft. in breadth, and now widens to 300 ft. There are frequent whirlpools and waterfalls. In many parts there is no talus of fallen rocks, still less banks of gravel or earth; but the stream fills the channel from wall to wall. Elsewhere masses of fallen rock from 30 to 300 ft. high line the sides of the rock. Below the cañons the valley opens, and there is much fertile bottom-land on one or both sides of the river. Numerous tributaries pierce the high plateau on either side, the whole presenting a strangely intersected topography. Escaping from the Grand Cañon, the river flows s. w. to the borders

of Nevada, receiving from the w. the Paria, Tapeat's river, and the Kanat (of Arizona), and the Virgen (of Nevada). Above Callville, Nev., the Colorado as also its tributaries, again bores its way through deep cañons, the sides of which in some places present walls of solid rock nearly 7,000 ft. high; the plateaus at the top of these rock masses, generally treeless, are again surmounted by terraces of 1,000 ft. or more in height. These lower and higher terraces are both piled with massive ruins, once the walled towns and cities of the Toltecs, as is supposed, a race said to be represented by the present Moqui Indians in the n.e. of Arizona. Below Callville the river is again shut in by the last of the cañons, the Black Cañon, 25 m. long, and from 1,000 to 1,500 ft. high. Shortly after receiving the Virgen, the Colorado takes a s. course, severing Arizona and Sonora on the e. from Nevada, California, and Lower California on the w., and receiving on the e. Bill Williams's Fork and the Gila. After absorbing the Gila, the river sweeps round in a westerly direction for 7 or 8 m., and soon expands to a width of 1,200 ft. Thence it pursues a tortuous course of 180 m., the last portion being through Mexican territory, to its mouth in the Gulf of California. From the sources of the Green river, the Colorado measures a total length of about 2,000 m. It is navigable for steamers as far as Callville, 612 m. from its mouth, and can be made navigable, it is thought, to the foot of the Grand Cañon, 57 m. higher. At low water (winter), vessels drawing nine ft. can reach only to Arnold's Point, 35 m. up. From the rapid rise of the tide, and the shifting of the channel, navigation is difficult to the head of tide-water, 40 m. from the mouth. The cañons of the Colorado were descended, 1867, by James White, escaping from hostile Indians, sole survivor of a party prospecting for mines; he floated down on rafts of drift-wood, and emerged barely alive. They were descended again, with almost incredible hardships and escapes, in 1869, by Major J. W. Powell, at the head of an exploring party sent by the United States govt. See Powell's *Exploration of the Colorado* (Washington, 1875).

COLORADO River: one of the chief streams of Texas. Rising in the high table lands of Bexar, near the N. Mex. line, about lat. 32° 30′ n., and long. 102° w., it flows s.e., receiving in its upper course the Conca, the San Saba, and the Lano on the s., and the Pecan from the n., and empties into Matagorda Bay. Austin, Bastrop, and Columbus are on its banks, and Matagorda near its mouth: For most of its course it flows through a fertile region, and has an average width of 250 ft. It is a clear stream; its name, meaning red, was originally applied to the Brazos n. and e., but the two were interchanged. The Colorado is some 900 m. long and navigable to Austin or farther.

COLORADO (or Cobu-Leubu) River: in the Argentine Republic. It rises in the Andes, abt. lat. 35° 40′ s., flows s.e. through a region not thoroughly known, and enters the Atlantic in lat. 39° 51′ s., long. 62° 4′ w., forming a delta.

The chief mouth has two fathoms of water at low tide, and six to nine ft. more at high, but is obstructed by sand bars. It is said to be navigable about 120 of its 600 miles.

COLORADO COLLEGE: educational institution at Colorado Springs, Col. It is the oldest institution of higher learning in the Rocky Mountain region, having been chartered in 1873 and opened for instruction in 1874. In 1888, the college was wholly reorganized, and its standard of work brought up to that of the best eastern colleges. It offers full collegiate courses both in the classics and in the sciences; for the latter it affords exceptional facilities; it has an excellent equipment. The meteorological observatory contains a number of self-registering instruments; and the Rocky Mountain region is remarkably rich in the materials and industries that give opportunity for the study of geology, mining, metallurgy, and kindred branches. The college, under Cong'l auspices, is non-sectarian and coeducational. It early gained local favor, and has now a wide repute. It has an associate preparatory school, Cutler Acad., fitting students for the freshman class of any college in the country.

There were (1906) in all depts. 43 instructors and 597 students. The library contained 39,800 vols. The buildings and grounds are valued at $500,000.

COLORA'DO POTA'TO BEE'TLE: see POTATO BEETLE.

COLORADO SPRINGS, Col.: a city and country-seat of El Paso county, on the Denver & R. G., the Denver T. & G., the Santa Fe, R. I. & M. P., and the Colorado M. R. R.'s. It is situated on the plain at an elevation of 6,000 ft., near Pike's Peak and has a world-wide reputation as a health and pleasure resort. Colorado Springs is an attractive city and is the midway gate to the western section of the state. The celebrated mineral springs of Manitou attract many visitors. Colorado Springs was settled in 1870 and its wonderful growth since 1892 may be largely attributed to the development of the Cripple Creek gold mines, which are 30 miles distant on the opposite side of Pike's Peak. The gold output since the discovery of the district in 1891 has been $136,000,000. A great part of this wealth flows into Colorado Springs, whose population has more than doubled in the past ten years, and whose bank deposits have increased 600 per cent. in the same period, and now amount to about $10,000,000. Colorado Springs boasts of a handsome opera house and five clubs, one occupying an edifice worth $80,000: 17 fine school buildings, Colorado College (q.v.), one of the oldest institutions of its kind in the State, with over 500 students, a state institution for the education of the blind and mute, sanatoriums, church edifices, 2 hospitals, and 6 trunk lines, 28 miles of electric railway and a modern telephone system. The city is governed by a mayor, who is chosen biennially, and a city council. Colorado Springs has a water supply costing over $1,000,000 and a sewage system perfected at an expense of $10,000,000. Pop. (1910) 29,078.

COLORADO STAGE: the rocks of the Colorado stage, one of the lower divisions of the upper cretaceous series, are all of marine origin and cover a great area, having been laid down in an interior sea that stretched from northern New Mexico, where it opened into what was then the Gulf of Mexico, to the ARCTIC OCEAN. This sea at about the lat. of Duluth, Minn., was over 1,000 m. wide. The Colorado is separated into two sub-stages, the lower, or Fort Benton, clays, shales, and limestones, with a maximum thickness of 1,000 feet, and the upper or Niobrara, shales, sandstones, chalk, and chalky marls, with a maximum thickness of 2,000 feet. Along the northern border of what was the Gulf of Mexico, in Alabama and Mississippi the Colorado is represented by the rotten limestone 500 to 1,200 feet thick, and along the western shore of the gulf, across Texas into Mexico, by the Eagle Ford shales, 500 feet thick, and by part of the great chalk belt 300 to 600 feet thick, that stretches from Arkansas into northern Mexico. The Colorado Stage is of interest because of its marking the time when more of North America was under water than since the carboniferous epoch, and because of the beds of chalk in South Dakota, Kansas, Arkansas, Texas, and Mexico. See CHALK; CRETACEOUS SERIES.

COLORADO, UNIVERSITY OF: a coeducational institution at Boulder, Col., supported by the state. It was incorporated in 1861 by the territorial legislature; when Colorado became a state in 1876, the constitution provided that the university at Boulder should become the State University, thus giving it the advantage of the lands appropriated by the national congress for such institutions. The University of Colorado commenced its work in September, 1877, with two departments, the collegiate and the preparatory. Since then the preparatory work has been gradually withdrawn from the university until the preparatory school has a separate organization; and the schools of medicine, law, and applied science have been added. The collegiate department offers courses leading to the degrees of A.B., PH.B., and B.S. In 1903 there were over 500 students in the university proper, and nearly 400 in the preparatory school. The library numbers 26,000 volumes.

COLOR BLINDNESS: the total or partial absence of color sensations as distinguished from sensations of brightness (greys, blacks and whites). Total color blindness occurs rarely; while statistics place the number of partially color-blind persons at approximately 3 per cent. of the male population. The defect is much less common in women than in men. In nearly all cases it is binocular. To the totally color-blind person, all the colors of the spectrum appear as greys; to the partially color-blind, parts of the physical spectrum look grey and other parts retain their normal aspect. The distribution of color and of brightness in the spectrum determines the form or type of the defect. The principal forms are (a) the

first and (b) the second type of red-green blindness, in which the spectrum shows yellow and blue with a grey strip between. In (b) (usually called red-blindness), the maximal brightness is, in addition, shifted from the yellow to the (normal) yellow-green, leaving the long wave-end relatively dark and unsaturated. The first red-green type (erroneously called green-blindness), is the common form of color blindness. Many anomalies of color blindness and color weakness, not easily brought under the chief types, have been described. Color blindness has acquired a strong practical interest in connection with certain occupations as *e.g.*, railway engineering, that demand prompt and accurate discrimination of colors. Many tests for the integrity of the color sense have been devised.

COLOR CIRCLE: a geometrical figure designed to represent the laws of color mixture (Sir I. Newton). White lies at the centre of the circle and the saturated colors around its periphery.

COLOR CONTRAST: see CONTRAST.

COLOR-HEARING: vision of colors, which in some persons is thought to accompany their perception of sounds. The facts are not yet brought under any scientific rules; they seem to vary with different experimenters. Bleuler and Lehmann have written on the subject: see CHROMAESTHESIN.

COLORIMETER, *kŭl′ō-rĭmē-tėr*: an instrument for measuring the depth of color in a liquid by comparison with a standard liquid. In its usual form it consists of two, long, narrow glass tubes placed side by side on a stand. The standard liquid and the one in question are poured in equal quantities, one into each tube; and water is then added to the darker till its tint becomes the same as the other. The amount of water used is a measure of the depth of color in the given liquid.

COLORING, as a Musical Term: applied to those passages and harmonic progressions in bravura airs affording the singer an opportunity of display. It is applied also to all grand harmonic combinations in orchestral compositions.

COLOR MIXTURE, in psychology: the process and the result of blending, by means of the color wheel or other suitable device, two or more colors. In mixture, two or more wave lengths affect the same or adjacent part of the retina together or in rapid succession. The laws of color mixture apply to the four related groups (to be considered in the order, reds, yellows, greens and blues) of chromatic qualities. The chief laws may be formulated as follows:

I. The mixture of any pair of colors selected from the same or from adjacent groups (*e.g.*, two reds or a yellow and a green) gives an intermediate color; the mixture of a pair from alternate groups (red and green or blue and yellow) gives a resultant color which may fall within any one of the four groups, depending upon the relative positions and amounts of the selected components.

II. The saturation or richness of a resultant color ranges from the saturation of the component colors to zero or pure grey (in complementary pairs). It varies directly with the saturation of the components and inversely with their remoteness in serial arrangement.

III. The brightness of a resultant color lies between the brightnesses of the components, each of which contributes in proportion to its relative amount.

IV. Any resultant color may be used as a component color in further mixtures, and when so used its mixing value is, except in extremes of illumination, independent of its origin.

The above formulæ do not apply to the mixtures of pigments.

COLOR PYRAMID: a graphic device for displaying at once all the important relations of the various colors to one another including black, white and gray. A four-sided plane figure has at each corner a color, i.e. red, yellow, green and blue. On the lines joining these colors all the other spectral colors can be shown and their various combinations with one another. See COLOR MIXTURE. At opposite ends of a line perpendicular to the center of this quadrilateral figure are represented black, white and gray; white being above, black below and gray at the level of the plane of the figure. Complementary colors are opposite each other in the plane figure and as the level rises toward white, or falls toward black, the effect is illustrated of mixing any of the colors with these extremes of the brightness series of colors.

COLORS, DIATONIC SCALE OF: a scale of colors corresponding to the diatonic scale of music. Sir Isaac Newton, investigating the properties of light, discovered that the length of the spaces occupied in the spectrum (q.v.) by the seven so-called primary colors, exactly correspond to the length of chords that sound the seven notes in the diatonic scale of music.

COLOR SENSATION: see VISUAL SENSATION.

COLORS, MILITARY: certain kinds of flags carried with the army. Standards, banners, pennons, guidons, ensigns, colors—all are military flags, each originally having a distinct meaning, now to some extent departed from. The ensigns were the original of those which are now called colors, and which belong especially to infantry regiments. The colors symbolize the good name and fame of the regiment, and are on that account protected in action with sedulous care; a victor always counts among his achievements the number of colors captured from the enemy. When a regiment obtains new colors, they are usually solemnly presented by some lady of distinction. The presentation is made with much military pomp.

COLOR TRIANGLE: a graphic device, similar to the color circle, (q.v.), for representing the laws of color mixture (q.v.). At the corners stand a certain red, green and violet blue with the other colors arranged along the

sides. Lines connecting complementary colors (q.v.) cross the triangle, passing through a common point (gray or white).

COLOR WHEEL, an apparatus for mixing colors. Its essential parts are (1.) an axle carrying overlapping, concentric colored discs and (2.) a motor or set of geared wheels for driving the axle and setting into rotation the discs.

COLOSSÆ, *ko-lŏs′sē:* populous city of anc. Phrygia, on the river Lycos. Its inhabitants were noted for skill in dyeing wool. Colossæ was almost entirely destroyed by an earthquake, A.D. 65. To the Christians of Colossæ the apostle Paul addressed one of his epistles.

COLOSSAL CAVERN, The: a large cave discovered in 1895, the entrance to which is about one and a half miles distant from the entrance to the Mammoth Cave, of Kentucky. It was not explored to any great extent until 1898, nor has it yet been thoroughly explored; and no scientific investigation was made of the interior until 1903. On account of its immense size and the varied character of its formations, which are preserved in all their pristine beauty, the Colossal Cavern is a most worthy rival of the Mammoth Cave. The Louisville & Nashville Railroad Company purchased the cavern in 1896. As exploration was pushed in various directions, the company acquired the land under which its course was found to run, and large sums have been expended in widening narrow passageways, smoothing rough places, building stairways where desirable for comfort, and doing many other things to make exploration easy. There are four separate entrances to the cavern, only one of which (an artificial entrance) is used by visitors, and over 14,000 linear feet in distance have been surveyed. Among the many attractions of the cavern are, Colossal Dome, 135 feet high, which is the most symmetrical as well as one of the largest domes known; Vaughn's Dome, 78 feet in height, which is approached through a magnificent canyon, about 300 feet in length; the Twin Pits, 65 feet deep; the Lover's Gallery, 400 feet long; the Ruins of Carthage, 400 feet long and 100 feet wide; Pearly Pool; Pulpit Rock; Dining Room; etc. Taken as a whole, Colossal Cavern presents to lovers of subterranean beauty and grandeur, a field which is perhaps unequaled by any other known cavern.

COLOSSEUM, n. *kŏl′ŏs-sē′ŭm:* same as Coliseum (q.v.) see also Amphitheatre.

COLOSSIANS, *ko-lŏsh′ĭ-anz,* Epistle to the: written by the apostle Paul, probably during his first imprisonment in Rome, 62 or 63 (though some have thought from Cæsarea, a year or two earlier), nearly at the same time with his epistles to the Ephesians, Philippians, and Philemon. Its authenticity has been disputed by Mayerhoff (1838), F. C. Baur (1845), Schwegler (1845–6), and others

of the Tübingen school; their objections based mainly on the similarity between this epistle and that to the Ephesians, and on their peculiarities of contents and of style, have no sufficient critical or historical basis. So Ewald's supposition (1857) that C. was written by Timothy under Paul's instructions is a mere unsupported fancy. Its Pauline origin, abundantly sustained by tradition and internal evidence, has been urged by Bleek (1865), Prof. Lightfoot, and most writers. Whether the apostle had personally founded or visited the church at Colossæ is a matter in dispute, turning on the meaning attached to ii. 1. The occasion of the epistle is comparatively clear. Epaphras had brought Paul word of the false teachers who were misleading the Colossians, and he writes to counteract the influence of their doctrine. He warns against 'philosophy and vain deceit' (ii. 8), against a system of minute observances 'in meat, or in drink, or in respect of an holyday, or of the new moon, or of the Sabbath days' (16), against 'a voluntary humility and worship of angels' (18), against 'will-worship and neglecting of the body' (23), and against prohibitory 'ordinances' (20–22) not founded on the divine command. The apostle's warning indicates the existence in Colossæ of a combination of the familiar Judaizing with a theosophy probably oriental, the beginning of gnosticism. Phrygia was much given to mystic rites and superstitions, and the council of Laodicea, 300 yrs. after the date of this epistle, had to forbid 'angel-worship' there. These speculations may have taken root early in the soil of Essene asecticism. The epistle is of great interest and value as casting light, though obscure and doubtful, on the first appearance of these curious errors in the Christian Church. Against them the apostle erects a definite and lofty Christology, showing that Jesus is the only and sufficient reconciler between God and man. He opens in a vein of earnest, noble, and touching eloquence, not surpassed even by himself, so that to fancy another authorship involves the huge difficulty of supposing a second writer in the infant church of gifts equal to his, and with style and mental processes precisely similar. The close, like that of the epistle to the Ephesians (which may not improbably have been written just after C.), consists mainly of practical precepts. Both were carried to their destination (iv. 7) by Tychicus.

COLOSSOCHELYS, n. *kŏl'ō-sŏk'ĕ-lĭs* [Gr. *kolossos*, a gigantic statue: *chĕlūs*, a tortoise]: a name given to the fossil bones and carapace of a tortoise of gigantic dimensions, discovered in the upper Tertiaries of the Sevalik Hills, India.

COLOSSUS, n. *kŏ-lŏs'sŭs*, plu. Colossi [L. *colossus:* Gr. *kolossos*, a gigantic statue at Rhodes bestriding the entrance of the port: It. *colosso:* F. *colosse*]: a statue of gigantic size. Colos'sal, a. very large; gigantic. Colossean, a. *kol'ŏs-sē'ăn*, gigantic.—*Colossus* is a Greek word of unknown origin, used to denote a statue very greatly beyond the size of life. In English the adjective 'colossal' is used in a

somewhat wider sense, to denote statues which exceed the size of life, in however small degree. Most statues are thus colossal, though few colossi have been erected in modern times. The 'Bavaria' (q.v.) at Munich, and the statue of 'Liberty,' New York, are celebrated examples. The colossal was the peculiar characteristic of Egyptian art, and innumerable colossi were raised in Egypt, mostly of the hardest stone, many of them from 50 to 60 ft. in height. The most celebrated is the vocal statue of Memnon (q.v.), in the plain of Thebes, described by Strabo and Pausanias, and supposed identical with the more northerly of the two existing colossi on the w. bank of the Nile. But it was in the artistic world of Greece that the most famous colossi appeared: e.g., the bronze statue of Pallas Athene on the Acropolis of Athens, the plume of whose helmet and the point of whose spear were landmarks to sailors between Sunium and Athens; another statue of the same goddess, of gold and ivory—the so-called Palladium in the Parthenon at Athens; and the Olympian Jupiter, of the same materials, the master-piece of Phidias, who was the author also of the two statues above mentioned. Among the seven wonders of the old world was reckoned the gigantic C. of Rhodes, representing Phœbus, the national deity of the Rhodians. It is said to have been commenced by Charcs, of Lindus, a famous pupil of Lysippus, and terminated by Laches. They formed it of metal, which was cast in separate pieces, a process which continued 12 years, and was completed B.C. 280. Its height is doubtful, some making it 90 ft.; others 90, and even 105 cubits. It cost 300 talents. Sixty years after its erection it was thrown down by an earthquake. The Romans imitated the Greeks in the erection of these gigantic structures. The statue of Jupiter upon the capitol, made from the armor of the Samnites, was so large that it could be seen from the Alban hills. Then there was the bronze statue of Apollo, of which what is supposed to be the head is now in the capitol; a bronze statue of Augustus, in the forum; a C. of Nero, executed in marble, of the enormous height of 110 or 120 ft., from which the contiguous amphitheatre is believed to have derived the name of 'Colosseum' (see AMPHITHEATRE); an equestrian statue of Domitian, in the centre of the forum; and many others.

COLOSTRUM, n. *kō-lŏs'trŭm* [L.]: the first milk of animals after delivery; yielded after delivery of a child. It differs very materially from ordinary milk, and generally appears as a turbid, yellowish, viscid fluid, similar to soap and water. When examined under the microscope it is found to contain, in addition to the ordinary milk, corpuscles (see MILK), peculiar conglomerations of very minute, fat granules, hence known as colostrum corpuscles. The chief chemical difference between C. and milk is that the former contains nearly three times more salts than the latter. It is probably this excess of salts that usually causes it to exert a purgative effect upon the new-born infant, and thus to remove the meconium (q.v.) which had acumulated in the fetal intestine.

COLSTAFF, *kōl'stăf*, or COLESTAFF, *kōl'stăf*, n. [mid. Eng. *col*, *cole*, the neck; *staff*]: a strong staff or pole on which two men carried a burden between them; a stang.

COLT, n. *kōlt* [Sw. *kult*, a young boar, a stout boy]: a young horse, usually limited to the male; a young foolish fellow: V. to be licentious; to run at large without rule; in *OE.*, to befool. COLT'ING, imp. COLTED, pp. *kōlt'ĕd*, befooled. COLT'ISH, a. *-ĭsh*, frisky, as a colt. COLT'ISHLY, ad. *-lĭ*. COLT'S-FOOT, a medicinal herb; the *Tussĭlāgo fär'făra*, ord. *Composĭtæ*, sub-ord. *Corymbĭf'ĕræ:* see TUSSILAGO.

COLT, *kōlt*, SAMUEL: 1814, July 19—1862, Jan. 10; b. Hartford: inventor. He entered his father's factory at ten; was sent to school at Amherst, Mass., 1827, ran away, shipped to Calcutta, and at sea, 1829, made a wooden model of his revolving pistol. Returning, he studied chemistry, lectured about the country, and gained enough to prosecute his invention, which was patented at home and in England and France, 1835. The Patent Arms Co., with a capital of $300,000, began to manufacture revolvers at Paterson, N. J., 1835, and its wares contributed to the success of the Seminole war in Fla., 1837; but sales elsewhere were slight, and the co. suspended 1842. Gen. Taylor wanted revolvers for the Mexican war 1847, but all had gone to Texas and the frontier; not one could be procured by advertising, and C. was forced to make a new model. He made 1,000 for $28,000 at Whitneyville: orders became abundant, chiefly through the emigration to Cal.; C. bought 250 acres at Hartford, protected them from inundation by a dike, and built a large armory 1852, and another 1861. The ultimate expense of these works, with dwellings for the workmen etc., was over $2,500,000. The weapon came into universal use, and C. gained a large fortune, besides many honors from Europe and Asia. He invented also a submarine battery for harbor defense, and laid an insulated cable from Coney Island and Fire Island to New York. He died at Hartford.

COLTER, or COULTER, n. *kōl'tĕr* or *kûl'ter* [OF. *coultre*—from L. *culter*, a knife, the cutting part: akin to Skr. *krit*, to split: It. *coltro*]: the iron part in front of a plow with an edge that cuts the earth or sod.

COLTON, WALTER: 1797, May 9—1851, Jan. 22; b. Rutland, Vt.: author. He graduated at Yale 1822, and at Andover Theol. Sem. 1825, taught in an academy at Middletown, Conn., edited the *American Spectator* at Washington 1828–30, and was made a chaplain in the navy by Pres. Jackson. After a voyage to the W. Indies, 1831, he went to the Mediterranean, 1832–35, in the *Constellation;* from this cruise came his *Ship and Shore* (1835), *Visit to Athens and Constantinople* (1836; reprinted 1851 as *Land and Lee in the Bosphorus and Ægean*), and *Notes of France and Italy*, included in his *Remains*. While assigned to the station at Charlestown, Mass., 1837, he edited the *Colonization Herald*, and during his naval chaplaincy at Philadelphia, 1838–45, the *North American*, 1841–42. Sent to Cal. 1845,

he was made alcalde of Monterey by Com. Stockton, 1846, July 28, and two mos. later by popular vote. He founded the first newspaper in Cal. (it was removed to San Francisco, and became the *Alta California*), built the first school-house, and announced the discovery of gold in a letter to the *N. American*. His *Deck and Port* and *Three Years in Cal.* appeared 1850. He returned to Philadelphia 1849, and died there. H. T. Cheever edited his *Literary Remains*, with a memoir (1851).—His brother, Calvin C. (1789–1857), was a voluminous writer, and edited Clay's Letters and Speeches.

COLUBER, *kŏl'ū-bĕr:* genus of serpents which, as defined by Linnæus, included an extremely miscellaneous assemblage of species, venomous and not venomous, agreeing only in the character of having a double row of plates on the under side of the tail. The venomous species are now excluded, not only from the genus C. but from the family *Colubridæ*, of which it is the type. The serpents of this family are very numerous; it includes, indeed, about one-half of all the known serpents in the world. Their geographic distribution is very wide, although they abound chiefly in the tropics. Some are terrestrial, and some arboreal in their habits, the latter chiefly natives of tropical Asia and America. A few are inhabitants of fresh waters, and feed on fish. They are active in the pursuit of their prey, some of them feeding chiefly on small birds and quadrupeds, some on insects. They do not kill their prey by constriction, like the boas. Some of them are singularly and brilliantly colored. A few, particularly of the arboreal species, are remarkable for their extremely lengthened form. None of them grow to a very large size.

To the genus *C.* belong the black snake (q.v.) of America, and the serpent of Æsculapius (*C. Esculapii*), figured by the ancients as an attribute of their god of medicine. It is of a brownish color, and attains the length of four or five ft. It is found in the centre and south of Europe, is easily tamed, and exhibits the greatest gentleness of manners.

COLUBRINA, n. plu. *kŏl'ū-brī'nă* [L. *colŭber*, a snake: It. *colubro*]: in *zool.*, a division of the Ophidia. COLUBRINE, a. *kŏl'ū-brĭn*, pertaining to serpents; having the appearance of a serpent; cunning.

COLUBRINA, *kŏl-ū-brī'na.* [L. *colubrina*, a plant, called also bryonia and dracontia. This is not the modern botanical use of the word]: genus of plants, ord. *Rhamnaceæ. C. fermentum*, a native of Guinea, is called Fermented Snake-wood. Its bitter bark is said to bring on fermentation in the liquors into which it is thrown.

COLUCCIO, *ko-lôt'cho,* SALUTATO: 1330–1406; b. Stignano, Italy: poet. He enjoyed the friendship of Petrarch, achieved fame as a poet, translated much of Dante's *Divine Comedy* into Latin verse, became sec. to Pope Urban V., and subsequently to the Florentine republic.

COLU'GO: see FLYING LEMUR.

COLUMBA, n. *kŏ-lŭm'bă*, or CALUMBA, n. *kă-lŭm'bă* [from *Colombo* in Ceylon]: the root of the plant *Coc'culus palmātus*, or *Menisper'mum palmātum*, an excellent tonic, ord. *Menispermācĕæ*. See CALUMBA.

COLUMBA, *ko-lŭm'ba*, SAINT (called also ST. COLUMCILLE and ST. COLM): one of the greatest names in the early ecclesiastical history of the British Isles: 521, Dec. 7—597, June 9; b. (it is believed, at Gartan, county Donegal) north of Ireland. His father, Fedhlimidh, of the powerful tribe of the Cinel Conaill, was a kinsman of more than one chief or prince then reigning in Ireland and in the west of Scotland, and his mother, Eithne, also was of royal descent. To this distinguished parentage, no doubt, he owed some measure of his great influence upon the minds of his countrymen.

He studied first at Moville, at the head of Strangford Lough, under St. Finnian, by whom he was ordained deacon; and afterward under another St. Finnian, at Clonard, where he was ordained priest. He is supposed to have had St. Comgall, St. Ciaran, and St. Cainnech among his fellow-disciples; and so conspicuous was his youthful devotion, even in that saintly company, that he received the name by which he is perhaps still best known in Ireland—'Colum-cille,' or 'Columba of the Church.' In 546, when no more than twenty-five years old, he founded Derry, and, six or seven years afterward, Durrow, the greatest of all his Irish monasteries. He seems now to have embroiled himself in the civil strifes of his country; and the belief that he instigated the bloody battle of Cooldrevny, 561, led to his excommunication by an Irish ecclesiastical synod. The justice of the sentence was challenged by ecclesiastics of rank, but it was probably among the causes which determined him to leave Ireland.

It was in 563, when in his 42d year, that, accompanied by 12 disciples, he set sail for the little island of Hy or Ioua, as it was then called—now better known as Iona (q.v.), or I Colum-cille—of which he obtained a grant, as well from the king of the Picts as from his kinsman the king of the Scots. Having planted a monastery here—built, it would seem, chiefly of wattles—he set himself to the great work of his life, the conversion of the Pictish tribes beyond the Grampians. The Picts dwelling s. of that mountain barrier had been converted by St. Ninian of Whithern, in the 5th c.; and the Scots who peopled the w. shores and islands of Scotland were either Christians before they passed over from Ireland, or were afterward converted by Irish missionaries. St. C. now brought the Picts of the north to the true faith; but, unfortunately, very little is known of the way in which he accomplished his task. Bede speaks simply of his 'preaching and example.' Adamnan, extolling his gift of miracles, tells how the gates of the Pictish king's fort burst open at his approach, and how, as he chanted the XLVth Psalm, his voice was preternaturally strengthened, so as to be heard like a thunder-peal above the din and clamor by which the Pictish magicians tried to silence his evening-prayer under the

walls of the Pictish palace. We get another glimpse of his missionary footsteps from the *Book of Deer*, a Celtic MS. of the 11th or 12th c., lately discovered at Cambridge. It records how 'Colum-cille and Drostan, the son of Cosreg, his disciple, came from Hy, as God had shown them, to Aberdour' (a beautiful little bay among the huge cliffs which fringe the coast of Buchan, as the n.e. district of Aberdeenshire is still called); how 'Bede, a Pict, was then high steward of Buchan, and gave them that town in freedom for evermore;' how 'they came after that to another town, and it was pleasing to Colum-cille, for that it was full of God's grace; and he asked of the high steward, Bede, that he would give it to him, but he gave it not; and, behold, a son of his took an illness, and he was all but dead, and the high steward went to entreat the clerics that they would make prayer for his son, that health might come to him; and he gave in offering to them from Cloch-in-Tiprat to Cloch-Pette-mic-Garnait; and they made the prayer, and health came to him.' In some such way as this, St. C. and his disciples seem to have traversed the Pictish mainland, the Western Islands, and the Orkneys, establishing humble monasteries, whose inmates ministered to the religious wants of the people. The parent-house of Iona exercised supremacy not only over all these monasteries, but over all the monasteries which St. C. had built in Ireland, and over those which were founded by his disciples in the n. provinces of England when they converted the Angles and the Saxons. 34 years appear to have been spent by St. C. in raising up and perfecting his ecclesiastical system in Scotland. But the labor did not so wholly engross him, but that he found time for repeated voyages to Ireland, and for a visit to Glasgow, where St. Kentigern or Mungo was restoring Christianity among the Welsh or British tribes of Cumbria and Strathclyde. The health of St. C. seems to have begun to fail in 593, but his life was prolonged till he reached his 77th year, when he breathed his last as he knelt before the altar of his church in Iona, a little after midnight, between June the 8th and 9th, 797. He was buried within the precinct of his monastery, and his bones —afterward enshrined—the stone pillar on which he slept, his books, his pastoral staff, and other things which he had loved or used, were long held in great veneration. No composition certainly known to be his has been preserved; but there have been attributed to him three Latin hymns of some merit, a short monastic (or rather heremitical) rule in Celtic, and several Celtic poems, among which is a collection of his prophecies.

The strength of St. C.'s character appears to have been in its earnestness. There is no reason to think that he was reputed either wiser or more learned than the better class of the ecclesiastics of his age. But the same enthusiastic temper which won for him in boyhood the name of 'Columba of the Church' continued to animate him through life. The length and frequency of his fasts and vigils are spoken of as nearly incredible. With this asceticism he combined unwearied industry; no hour

passed without its allotted duty of prayer, or reading, or transcribing, or other work. As the prevailing austerity of his disposition was often lighted up by gleams of tenderness and kindness, so it appears to have been clouded at times by anger and revenge. 'But whatever sort of person he was himself,' wrote Bede, in allusion probably to these infirmities, 'this we know of him for certain, that he left after him successors eminent for their strict continence, divine love, and exact discipline; men who follow, indeed, doubtful cycles in their computation of the great festival [i.e., Easter], because, in that far out of the world abode of theirs, none had ever communicated to them the synodal decrees relating to the paschal observance; but yet, withal, men diligently observing those works of piety and chastity, and those only, which they were able to learn from the writings of the prophets, evangelists, and apostles.'

The ecclesiastical system of St. C. was so far peculiar that, in the words of Bebe, Iona 'had always for its ruler a presbyter abbot, to whose jurisdiction both the entire province, and the bishops themselves also, contrary to the usual order of things, must own subjection, after the example of that first teacher of theirs, who was no bishop, but a presbyter and monk.' The jurisdiction usually reserved to the episcopate was thus transferred to the abbatial office; little more being left to the bishop than the right of ordination and a certain measure of precedence in the celebration of divine service. St. C. himself, as well as his followers generally, till 716, kept Easter on a different day, and shaved their heads after another fashion, than obtained in other parts of Western Christendom. But, with these exceptions, their creed and rites appear to have been substantially the same.

The life of St. C. was written by two of his successors in the abbacy of Iona—Cuimine Ailbe (657–669) and St. Adamnan (679–704). The first of these lives is incorporated in the second, which is altogether one of the most valuable works now extant on the early ecclesiastical history of Scotland and Ireland. It has gone through many editions; the last, and incomparably the best—a book, indeed, beyond praise—being that of William Reeves, D.D., printed at Dublin, 1857, for the Bannatyne Club and the Irish Archæological and Celtic Soc., and included in the series of *Historians of Scotland*, published by Edmonston and Douglas. Besides his *Vita Sancti Columbæ*, Adamnan wrote *De Locis Sanctis*, an interesting account of Jerusalem and its neighborhood, from the information of a French bishop, who, in returning from the Holy Land, was driven among the Western Isles of Scotland. This tract has been more than once printed, and its chief passages were transcribed by Bede in his *Historia Ecclesiastica Gentis Anglorum*. We learn from it that waxed tablets for writing were in use among the disciples of St. C. in Iona, at the close of the 7th century.

COLUMBACEI, n. plu. *kŏl'ŭm-bā'sē-ī* [L. *columba*, a dove]: the division of rasorial birds which includes doves and pigeons.

COLUMBAN, *ko-lŭm'ban*, or COLUMBANUS, *ko-lum-bā'nus*, SAINT: one of the most learned and eloquent of the many missionaries whom Ireland sent forth to the continent during the Dark Ages: abt. 545—615, Nov. 21; b. Leinster. Having studied under St. Comgall, in the great monastery of Bangor, in Ulster, he passed over to France, in his 45th year, accompanied by 12 companions, and founded the monasteries of Annegray, Luxeuil, and Fontaine. His adherence to the Irish rule for calculating Easter involved him in controversy with the French bishops about 602; and, a few years later, the courage with which he rebuked the vices of the Burgundian court led to his expulsion from France. Passing through Switzerland into Lombardy, he founded, 612, the famous monastery of Bobbio, in the Apennines, where he died. His life, written, within a century after his death, by Jonas, one of his successors in the abbacy of Bobbio, has been repeatedly printed. The writings of St. C., which are wholly in Latin, consist of a rule for the government of his monastery, a few poems, several letters on ecclesiastical affairs, and 16 short sermons. His monastic rule has been printed more than once; but the most complete edition of his works is in Fleming's *Collectanea Sacra*, published at Louvaine, 1667, and now of such rarity that a copy of it sells for about $175. Of the sermons of St. C., M. Guizot remarks that 'the flights of imagination, the pious transports, the rigorous application of principles, the warfare declared against all vain or hypocritical compromise, give to the words of the preacher that passionate authority which may not always and surely reform the soul of his hearers, but which dominates over them, and, for some time at least, exercises paramount sway over their conduct and their life.' The town of San Colombano, in Lombardy, takes its name from the Irish monk, as the town and canton of St. Gall (q.v.), in Switzerland, perpetuate the name of the most favored of his disciples.

COLUMBARIUM, *kŏl-um-bā'ri-ŭm* [see COLUMBINE]: dove-cot or pigeon-house. When used in the singular, C.

also signified a particular kind of sepulchral-chamber used by the Romans to receive the ashes of bodies which had

been burned. The name was derived from the chamber being surrounded by small niches or holes resembling the holes in a dove-cote (Columbaria) in which the urns (*ollæ*) were deposited. Tombs of this description were used chiefly by great families for depositing the ashes of their slaves and dependents. Several of them are still to be seen at Rome. The annexed wood-cut (copied from Smith's *Dictionary of Greek and Roman Antiquities*) represents a very perfect one discovered at the Villa Rufini, about 2 m. beyond the Porta Pia, 1822. In each niche were two urns, with the name of the persons whose ashes they contained inscribed over them.

COLUMBELLA, n. *kŏl-ŭm-bĕl'la* [dim. of L. *columba*, a dove]: genus of mollusks, family *Buccinidæ;* small pretty-marked shells, with a long narrow aperture, a thickened and dentated outer lip, a crenulated inner one, a small lamellar operculum. Recent species known 205, fossil 8. The former are from the subtropical and tropical parts of the old and new worlds; the latter from the Teritiary.

COLUMBIA, Mo., a city and county-seat of Boone County, situated 10 miles north of the Missouri River, on two railroads. It was first settled in 1815 by Kentuckians and is governed by a mayor and a council of eight members, who are elected semi-annually. The city has several banks and is a center of flourishing business. Columbia has many public and educational institutions, including Missouri University, Missouri State Farm and Experiment Station, Parker Memorial Hospital, Stephens Baptist College for Women, Christian College for Women, Columbia Normal Academy, Columbia Business College, University Military Academy, and High School. Pop. 6,000. (1910) 11,454.

COLUMBIA: borough of Lancaster co., Penn., on the Susquehanna river, and on the Pennsylvania and Philadelphia and Reading railroads, 80 m. w. of Philadelphia, 12 m. w. of Lancaster, and 28 m. s.e. of Harrisburg. Columbia was originally called Wright's Ferry, founded by Quakers in 1726. Columbia was one of the places proposed in 1789 for the capital of the United States. It is an industrial and trade center of considerable importance. The chief manufactures are foundry and machine shop products, boilers and engines, flowers, beer, wagons, shirts, silk, lace and lumber. The bridge connecting Columbia with Wrightsville opposite, was burned to prevent the Confederate troops from marching on Philadelphia in June, 1863. It has been replaced by a new one which is one of the longest in the country.

COLUMBIA, S. C., the State capital, and county-seat of Richland County, situated in the centre of the State, on the east bank of the Congaree River, at the head of navigation, two miles below the junction of the Broad and Saluda. It is on the Atlantic Coast Line, the Seaboard Air Line, the Southern, and the Columbia, N. & L. R.R.'s, 129 miles northwest of Charleston, 82 miles northeast of Augusta, Ga., and 153 miles north of Savannah.

Columbia is built on a sand-hill plateau which forms

a bluff 100 feet high at the river, and sloping away on all sides, giving excellent drainage. The streets which are 100 feet wide are at right angles to each other, and there are four avenues 150 feet wide radiating from the capitol. All the chief streets are boulevards, with handsome shade-trees not only along the sides but in the centre. There is also a fine park. The business buildings are rapidly increasing in size and architectural beauty. The granite State-house, costing $4,000,000 and modeled on the capitol at Washington, is one of the most imposing in the South and one of the handsomest in the country. The executive mansion, the government building, the county court-house, the city hall, the State insane asylum and State penitentiary are also noteworthy. The city is rich for its size in important educational institutions: South Carolina College, founded 1801; the Presbyterian Theological Seminary, also very old; Columbia Female College (Methodist Episcopal Church South), founded 1859; Allen University (African Methodist Episcopal), 1881; the College for Women (Presbyterian) 1890; and Benedict College (colored). It has also a well-attended public-school system, and two high schools. The principal streets are asphalt; the roads are chiefly of sand and clay and are excellent. The city owns its waterworks, and has gas, electric light and power, and an electric railway system. The government is by the revised charter of 1894, with a two-years' mayor, and a council which has nearly all the appointing power.

The city is in the heart of a fertile cotton district, and near forests of pine, oak, walnut, and maple. In 1892, there was one cotton mill in the city employing 125 men. Now the great Whaley system of cotton mills includes four in Columbia, with 197,000 spindles, 4,840 looms, and $3,100,000 invested capital. The Olympia mill, with nine to ten acres of floor space, and over 100,000 spindles, is the largest in the world operating under one roof; the Granby and Richland are also large and well-equipped mills; and the three, owned by one company and employing almost 3,000 hands, are the nucleus of a large village of 500 acres owned by the company, with sewerage, fire department, electric street lighting, cottages wired and plumbed, churches, schools, etc. The Columbia Mills Company is also a great organization, capitalized at $1,500,000, and turning out over 20,000 bales of cotton duck a year. Besides this predominant industry, there are growing hosiery works, glass works which utilize the fine sand found near by, four quarries of fine granite, large lumber works starting up, and small miscellaneous industries.

The town was settled about 1700, but remained farm land till 1786, when the people of the State demanded a capital more centrally located than Charleston, and Columbia village was laid out. The legislature first met there in 1790. In the Civil War it shared the general fortunes of the State, till Sherman's army entered it 1865,

Feb. 17. The following night a fire broke out which lasted all the next day and laid over half the city in ashes, including a number of business blocks, private residences, schools, the railroad station, several churches, and a convent, and destroyed a great quantity of cotton. Its development since is part of the general industrial awakening of the South. Pop. (1910) 26,319.

COLUMBIA, Tenn., county-seat of Maury County, situated on the Duck River, and on the Louisville & N. and the Nashville, C. & St. L. R.R.'s. It is the trade centre of a fertile agricultural region, and has a stock-yard, a grain elevator, and cotton and flouring mills. It is the seat of Jackson College and two seminaries for young women. It also has a United States arsenal. Pop. (1900) 6,052; (1910) 5,754.

COLUMBIA, *kō-lŭm'bĭ-a*, or OREGON: largest stream whose mouth is on the w. coast of the United States; rising in the Rocky Mountains, draining that range by its different head-waters, from about lat. 54° n. to about lat. 42° n. Its two main branches—the Columbia Proper from the n.n.e., and the Snake from the s.e.—meet about lat. 46° 5′ n., long. 118° 55′ w., and united run together to long. 124° 5′ w., where they empty themselves into the Pacific in a latitude corresponding with that in which they joined. This great river, long vaguely believed to exist, was not discovered till 1792 Its discoverer was Captain Gray, of Boston, who gave it the name of his own vessel in place of the floating appellations of the Oregon and the San Roque. The extreme length is rather more than 1,200,m.; most of its course—all but the upper part of the n. branch—being within the limits of the United States.

COLUMBIA, BRITISH: see BRITISH COLUMBIA.

COLUMBIA, DISTRICT OF: see DISTRICT OF COLUMBIA.

COLUM'BIA UNIVERSITY: the most notable educational institution in New York. The funds for its foundation were raised by a lottery authorized by the legislature 1746, and in 1751 amounted to $1,700. The money was vested in a board of trustees who elected Dr. Samuel Johnson of Stratford, Conn., the first pres., 1753. In the following year the institution was chartered as King's College, and soon afterward it received from Trinity Church a donation of the plot of ground bounded by Barclay and Murray streets and Church street and the North river. According to the charter the college was to be governed by a board of trustees, consisting of the abp. of Canterbury, a number of provincial officers, ministers representing the five leading denominations in the city, and 24 private citizens. The erection of a suitable building on its ground was begun, and the corner-stone laid 1756, Aug. 23. In 1760, May, it was sufficiently advanced to permit the teachers and students to sleep and eat there, Pres. Johnson having formed the nucleus of a school in a building owned by the church 1754, July. Pres. Johnson was succeeded by Myles Cooper,

CAPE HORN ON THE COLUMBIA RIVER.

S.T.D., LL.D., 1763, who served till 1775. He was a strong tory, made himself obnoxious on account of his political opinions, and through fear of popular violence fled to England, 1775, May 10. He was succeeded by Rev. Benjamin Moore, but in 1776, May, the college building was converted into a hospital, and students and teachers dispersed. During the war a large quantity of valuable apparatus and books were stolen or destroyed. The operations of the college were resumed 1784, May, when an act of the legislature changed the name to C. C. and placed the institution under the control of a body of officers which were styled the Regents of the University. Rev. W. Moore was pres. 1784–87, and was followed by Rev. Dr. William Samuel Johnson, son of the first pres., who served 1787–1800. Rev. C. H. Wharton, D.D., LL.D., presided a few months, 1800, and after his resignation Rev. Benjamin Moore, who had become Prot. Episc. bp. of New York, was recalled. Under his administration the building was altered and enlarged. He was succeeded, 1811, by Mr. Harris, who served till 1829. It was during his presidency that the institution came into possession of a tract of about 20 acres lying between Fifth and Sixth avenues and Forty-seventh and Fifty-first streets, formerly a noted botanical garden, owned and laid out by Dr. David Hosack, and filled with plants from all parts of the world. He made grant of it to the college, 1816, on the condition that the college should be removed thither within 12 years, but five years afterward this condition was rescinded. Further alterations were made to the building, and two wings for professor's dwellings, a new library, and a chapel were erected during Dr. Harris's tenure. Hon. William A. Duer was the next pres., 1829–42, and under him changes were made in the curriculum, and the scientific and literary course was established. Dr. N. F. Moore succeeded Judge Duer, serving till 1849, when Charles King, LL.D., became pres. and continued till 1864, the beginning of Pres. Barnard's long and distinguished term. About 1850, the trustees divided the botanic-garden property into lots and disposed of many of them on long-running ground-rents. This action and the desire of the city to extend Park Place through the college grounds renewed the agitation in favor of a removal, and at length the trustees selected the buildings formerly used by the State Institution for Deaf Mutes on Forty-ninth street and Fourth avenue, on account of their accessibility and retirement. New buildings were erected on the block bounded by Fourth and Madison avenues and Forty-ninth and Fiftieth streets, and the college took possession of its new quarters, 1857. Since then alterations, improvements, and enlargements have been made as the progress of the institution demanded. Of its professional departments, the medical school is the oldest. It was established 1767, and conducted till 1813, when the New York College of Physicians and Surgeons was founded and the school of the college merged into it. In 1860, the College of Physicians and Surgeons became the medical dept. of C. C., thus making the existence of the medical

school virtually continuous since 1767. The second in age is the law school or dept., established 1858. The third school, called the School of Mines, was established 1863. In it mining engineering, civil engineering, metallurgy, geology and natural history, analytical and applied-chemistry, and architecture are now taught. A school of political science was opened 1880, and subsequently Melvil Dewey, chief librarian, established the School of Library Economy, which was afterward removed to the State Library. The 100th anniversary of its charter under its present name was observed with much enthusiasm, 1887, Apr. 13. At that time it had 5 faculties, over 60 professors and instructors, and 1,600 students. Anxious to complete a continuous service of 25 years and conscious of growing debility, Pres. Barnard spent the winter 1887–8 in the south; but his infirmities so increased that he felt constrained to resign his office 1888, May 7. He survived his resignation less than a year, dying 1889, Apr. 27. On Oct. 7 following, Seth Low, LL. D., was chosen pres., and was installed 1890, Feb. 3.

The trustees adopted 1896, Feb. 3, a resolution formally changing the title of the corporation from Columbia College to 'Columbia University.'

It became evident in 1891 that the growing needs of the college would necessitate enlargement of its facilities. Investigation resulted in the purchase, at a cost of $2,000,000, of a new site of about 17½ acres in the upper part of Manhattan Island. It lies in the form of an unbroken rectangle on the crown of the island midway between Riverside and Morningside parks. Its boundaries are 116th and 120th streets, Amsterdam ave. and the Boulevard. The change was made to the new buildings, 1897, Oct.

The Library building is the gift of Pres. Low as a memorial to his father and cost over $1,000,000. Each department has its own working laboratory of books. It contains 380,000 vols., besides pamphlets and duplicates; and the collection is constantly growing. Other buildings are Schermerhorn Hall, used for geology, mineralogy, botany, psychology, and zoology; Physics Building; Havemeyer Hall, used for metallurgy, chemistry, and architecture; and the Engineering Building.

West of the univ. grounds stands Barnard College. This was incorporated 1889, by the regents of the state of New York, as a college for women. See BARNARD COLLEGE.

Advanced courses and opportunities for original research leading primarily to these degrees are offered by the faculty of philosophy, the faculty of political science, and the faculty of pure science.

The School of Law, established in 1858, offers a course of three years in the principles and practice of private and public law, leading to the degree of bachelor of laws.

The College of Physicians and Surgeons, founded in

1807, offers a course of four years in the principles and practice of medicine and surgery, leading to the degree of doctor of medicine.

The School of Mines, founded in 1863, offers courses of study, each of four years, leading to a professional degree in mining engineering and in metallurgy.

The Schools of Chemistry and Engineering, set off from the School of Mines in 1896, offer courses of study, each of four years, leading to an appropriate professional degree in chemistry and chemical engineering and in civil, sanitary, electrical, and mechanical engineering.

The School of Architecture, set apart from the faculty of applied science in 1902, pending an organization of a faculty of fine arts, offers a course of study of indeterminate length, leading to the degree of bachelor of science in architecture.

Teachers College, founded in 1888 and chartered in 1889, was included in the university in 1898. It is a separate corporation. It offers instruction in the history and philosophy of education and the theory and practice of teaching, and takes academic rank in the university system as a professional school for teachers.

The College of Pharmacy is, similarly, a separate corporation. It offers university courses leading to the degrees of pharmaceutical chemist and doctor of pharmacy.

By agreement with Mr. Joseph Pulitzer of New York, executed July 20, 1903, Columbia University will establish a school of journalism, for which purpose Mr. Pulitzer has given to the university the sum of $1,000,000.

In 1902 Nicholas Murray Butler succeeded as president Seth Low, resigned, 1900. There are 445 professors and instructors and more than 5,000 students are in attendance. The students of Barnard number 400.

COLUMBIAD, *ko-lŭm'bĭ-ad:* species of heavy cannon, combining qualities of the gun, howitzer and mortar, invented by Col. Geo. Bomford (1780–1848), and used in the war of 1812, chiefly for U. S. coast defense. They were introduced with little change into the French service, and called Paixhan guns.

COLUMBIAN, a. *kō-lŭm'bĭ-ăn* [from *Columbus*, the discoverer of Amer.]: pert. to the United States or to America. COLUM'BITE, n. *-bīt*, a mineral of a grayish or brownish-black color, occurring in single crystals and in small crystalline masses, first discovered in Amer. COLUM'BIC, a. *-bĭk*, pertaining to or produced from the metal columbium. COLUM'BIUM, *-bĭ-ŭm*, or TAN'TALUM (symbol Ta): rare metal found in the mineral tantalite, obtained from Bodenmais, in Bohemia, and from Sweden. It can be obtained as a black powder, which assumes a lustrous aspect when subjected to burnishing. It forms a series of compounds, of which only Columbic Acid (TaO_3) is worthy of notice. COLUM'BATE, n. *-bāt*, a salt of columbic acid.

COLUMBIAN COLLEGE. Columbian College was originally organized in 1821 by special act of Congress, under the auspices of the Baptist denomination. In 1873, in accordance with the provisions of a donation given by William W. Corcoran of Washington, D. C., the charter was changed by special act of Congress making it a university. By special acts of Congress in 1904 and 1905 the university was made non-sectarian, the name changed to The George Washington University, and authority given to organize under the charter and in connection with the university, colleges desiring to carry on educational work in the arts, sciences, liberal and technical knowledge; the college to be non-degree-conferring, its faculty recommending students for the baccalaureate degrees only, the degrees being conferred by the university. Colleges may be organized by any society with the consent of the university, the charter providing the mode and manner of nominating and electing trustees. Under this amendatory act Columbian College was reorganized as an undergraduate college in connection with the university, continuing its affiliation and control with the Baptist denomination. See GEORGE WASHINGTON UNIVERSITY, THE.

COLUMBIAN EXPOSITION, commemorating the 400th anniversary of the discovery of America by Columbus, was held from May 1 to October 30, 1893, at Jackson Park, covering 666 acres on the lake front at Chicago, Ill. It was the fourteenth of the great World's Fairs, and the third held in the United States.

History.—By the summer of 1889, the much-discussed plan of holding a World's Fair in 1892 to commemorate the discovery of America by Columbus began to assume definite shape; and in Dec. 1889 a World's Fair Bill was introduced in the U. S. senate, and was referred to a committee which during the following January held a hearing on the subject of locating the site. Delegations appeared before the committee representing the cities of New York, Washington, Chicago and St. Louis. Chicago was finally chosen as the site, and the bill passed and approved 1890, April 25 fixing 1893, May 1 as the date of opening. The organization of the fair was placed under the charge of an Illinois corporation previously organized, and the World's Columbian Commission, a national commission consisting of delegates appointed two from each State and Territory, two from the District of Columbia, and eight at large. Harlow N. Higinbotham was president of the former, and Thomas W Palmer of the latter; George R. Davis was appointed director-general. Mr. Higinbotham also served during the Exposition as chairman of the council of administration, a body composed of 2 members of the board of directors of the Exposition, and 2 members of the Commission, and organized for the purpose of concentrating the jurisdiction of both bodies in order to more effectually administer affairs. Exposition headquarters were established in Chicago in January 1891. A Department of

Publicity and Promotion was established, and a Board of Lady Managers with Mrs. Potter Palmer at its head, and a World's Congress Auxiliary with C. C. Bonney as president were organized. The work of construction was placed under the charge of a Bureau of Construction, of which Daniel H. Burnham was chief; work was begun on the first building in 1891, July.

A department of foreign affairs was also organized, which sent special commissions to Europe, South America, China, Japan, and South Africa to arouse interest in the Exposition and obtain exhibits. 52 foreign powers officially participated in the Exposition, while 14 others had exhibits in the several departments or on the Midway Plaisance. On 1892, Oct., 23, the buildings were formally dedicated by the Vice-President of the United States; the dedication ceremony, which was attended by 130,000 people, was held in the Manufactures and Liberal Arts Building. The exposition was formally opened 1893, May 1, by President Cleveland; at the moment when he declared the fair open the flags of the various nations were unfurled, the electric fountains turned on, and the statue of 'The Republic' unveiled. The attendance at the fair increased toward the close; the days showing the largest attendance were Oct. 9, Chicago Day, and July 4, American Independence Day; the average daily attendance was 172,712. The exposition was formally closed Oct. 30; preparations had been made for elaborate closing ceremonies, but the assassination of Mayor Harrison of Chicago two days previous prevented the carrying out of the proposed programme.

Financial.—The bill providing for the exposition required the city of Chicago to raise $10,000,000 toward the expenses; later Congress provided for the gift of a special mintage of $2,500,000 in souvenir half-dollars, the exposition authorities also issued $5,000,000 worth of debenture bonds; about $3,000,000 additional were received from other miscellaneous sources, so that about $20,000,000 was available before the opening; the total expenditures for the fair were over $31,000,000, and the profits about $1,850,000. The United States Government appropriated $2,250,000 to its exhibits, the States $6,060,-350, the foreign governments $5,830,000, and over $350,000 was invested in the Midway Plaisance.

Grounds and Buildings.—There were about 150 buildings erected; the more important were built of the material called 'staff,' a composition of plaster of Paris and jute fibre, which produced the general effect of white marble, hence the exposition grounds became generally known as the White City. One channel from Lake Michigan led into a pond in the southern part of the grounds, and north of this another channel led into a long basin; this second channel passed underneath a handsome bridge and colonnade. The basin was joined by an artificial canal to the lagoon, a small lake, containing Wooded Island. About the basin and lagoon the principal buildings were

grouped. The space about the basin was known as the Court of Honor. The Manufactures and Liberal Arts Building faced the lake near the eastern end of the basin. At the head was the Administration Building, with its gilded dome; near this were the Agricultural Building, Machinery Hall, and the Electrical and Mining Building. On the west of the lagoon were the Transportation Building and Horticultural Hall, and on the east the Government Building, with a large dome 150 feet high; at the northwestern end of the lagoon was the Woman's Building, and at the northeastern end the Fisheries Building. Still further to the north were the State buildings, many of the foreign nations' exhibits, and the Fine Arts Building. In the southern part of the grounds was the Forestry Building, and near this a number of small exhibits, the Krupp exhibit, the dairy, etc. The Manufactures and Liberal Arts building was the largest ever constructed for an exposition; it covered nearly 31 acres; the main roof was of iron and glass. Its exhibits included everything related to engineering, architecture, publishing, technical and domestic arts, together with education, the professions, music, and the drama. The Administration Building was considered one of the most beautiful on the grounds, its facades being ornamented by several notable groups of statuary. The Fine Arts Building was an example of purely classical architecture; it was entered by four richly ornamented portals. The exhibits were largely of painting and sculpture. The Woman's Building contained a collection representing woman's work in all lines of activity; the Transportation Building's collection represented all modes of transportation from the most primitive to the most complete modern inventions of ocean steamers and locomotives. The State and foreign nations buildings were in many cases copies of some characteristic historic building or type; as, for example, Virginia's building was modeled on Washington's Mount Vernon home, Massachusetts' was a copy of John Hancock's house; England's represented a manor house of the time of Henry VIII. and Spain's the Convent of La Rabida. The Forestry Building was in the rustic style; the columns supporting the roof being made of tree trunks furnished by the different nations and the States and Territories of the U. S. The architectural effect of the buildings was enhanced at night by the use of electric lights outlining the buildings, search-lights, and the electric fountains playing in changing colors. Statuary was freely used for adornment of the various buildings and the park; of special note was the McMonnies fountain at the head of the basin immediately in front of the Administration building, and the statue of *The Republic* by D. C. French at the west end of the basin. This statue was a draped female figure 65 ft. in height, with arms upraised, holding in her right hand a globe on which rested an eagle with outstretched wings, and in her left grasping a pole surmounted by a liberty cap. The head was encircled by a crown, the jewels in which were electric lights.

COLUMBIAN EXPOSITION.

The statistics of the principal buildings are given below:

Administration building, area, 1.6 acres; cost, $450,000; style, French renaissance; architect, Richard M. Hunt, New York.

Agricultural and annex buildings, area, 13 acres; cost, $618,000; style, classic renaissance; architects, McKim, Meade & White, New York.

Electricity building, area, 5.5 acres; cost, $401,000; style, Corinthian; architects, Van Brunt & Howe, Kansas City.

Fine Arts building (two annexes), area, 4.8 acres; cost, $670,000; style, Grecian-Ionic; architect, Charles B. Atwood, Chicago, Ill.

Fisheries building (two annexes), area, 1.12 acres; cost, $224,000; style, Spanish-Romanesque; architect, Henry Ives Cobb, Chicago, Ill.

Government building, area, 3.3 acres; cost, $400,000; style, classic; architects, Windrim & Edbrooke.

Horticultural building, area, about 6 acres; cost, $300,000; style, Venetian renaissance; architect, W. L. B. Jenney, Chicago, Ill.

Machinery Hall and annex building, area, about 18 acres; cost, $1,200,000; style, renaissance of Seville; architects, Peabody & Stearns, Boston, Mass.

Manufactures and Liberal Arts building, area, 30.5 acres; cost, $1,500,000; style, Corinthian; architect, Geo. B. Post, New York.

Mines and Mining building, area, 5.5 acres; cost, $265,000; style, Italian renaissance; architect, S. S. Beman, Chicago, Ill.

Transportation and annex buildings, area, 14¼ acres, cost, $370,000; style, approaching Romanesque; architects, Adler & Sullivan, Chicago, Ill.

Women's building, area, 1.8 acres; cost, $138,000; style, Italian renaissance; architect, Miss Sophia B. Hayden, Boston, Mass.

Forestry building, area, 2.5 acres; cost, $100,000; style, rustic; architect, Charles B. Atwood.

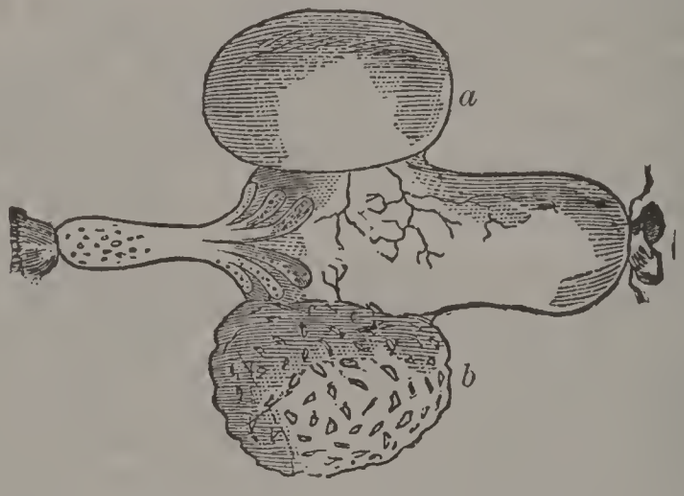
Music Hall, Casino and Peristyle buildings, area, 0.14 acre; cost, $310,000; architect, Charles B. Atwood.

Live-stock Pavilion building (and sheds), area, 43.5; cost, $335,000; style, Doric; architects, Holabird & Roche, Chicago, Ill.

On 1894, Jan. 8, fire destroyed the Casino, Peristyle, and Music Hall, and damaged the Manufactures building; and on July 5, 1894, the Terminal station, Administration building, Agricultural, Electricity, Mines and Mining, Machinery and Manufactures and Liberal Arts buildings were burned.

Special Features.—Among the special features of the exposition the Midway Plaisance was perhaps most interesting; on this were represented the villages of different nations and peoples, including the Irish village, the Javanese village, the Japanese bazar, the Samoan and Dahomey villages, etc.; here also were the 'Street of Cairo', and the various amusement features; and the Ferris wheel, 250 feet in diameter, carrying 36 coaches. Other special exhibitions of interest outside the main buildings were the reproduction of the cliff dwellers' buildings at Battle Rock Mountain, Colo.; the models of Columbus' three caravels, of the Viking ship, and of a modern United States battleship. Another interesting feature of the exposition was the numerous world's congresses held on the grounds under the auspices of the World's Congress Auxiliary. These were the Congress of Woman's Progress, Public Press, Medicine and Surgery, Temperance, Moral and Social Reform, Commerce and Finance, Music, Literature, Education, Art, Architecture, etc., Government, Law Reform, Political Science, etc., including the General Department, and Labor, Religion, Sunday Rest, Public Health, Agriculture. Of these the World's Parliament of Religions opened on Sept. 11, attracted the most general attention.

COLUMBIDÆ, *kol-ŭm'bĭ-dē:* family of birds, often comprehended under the general English names *dove* and *pigeon*, and forming the genus *Columba* [Lat. pigeon] of Linnæus. They are generally ranked among gallinaceous birds, but have points of resemblance to the order *Insessores*, and have by some naturalists been constituted into a distinct order, intermediate between these. They agree with the true gallinaceous birds in the character of their bill, and in the soft naked tumid membrane at the base of it, in which the nostrils are pierced; also in their *rasorial* (scraping) habits and blunt claws; but they differ very widely from them in their great powers of flight, which are not surpassed in any other family of birds; in having the hind-toe on the same level with the other toes; in having no connecting membrane at the base of the toes; in being not polygamous but pairing, and in the male taking part with the female in the care of the young; in their having generally only two young ones at a time, but breeding often in a year; in their double crop, an expansion of the gullet on both sides, in which they differ from all other birds; and in the secretion, at breeding time, of a milky fluid by the crop of both parents, as in the parrots, with which the food is saturated in order to fit it for the young, which, unlike those of the true gallinaceous birds, are at first very helpless. The figure represents the gullet and double crop of



Gullet and double crop of a pigeon.

a pigeon—one side, *a*, exhibiting the usual appearance of the crop; and the other, *b*, showing its appearance at breeding-time when the glands are developed which secrete the milky fluid. The number of species of C. is very great, with so much resemblance that scientific classification has been found very difficult. They are found in all warm and temperate climates, but comparatively few are European. The Indian archipelago particularly abounds in them. Many of the tropical species have a brilliancy of colors scarcely excelled in the humming-birds or sun-birds. The chaste beauty of the plumage is always pleasing, even when brilliancy is wanting. The voice is very similar in all the species, the *cooing* of some, however, being harsh, that of others soft and pleasant. Some species are migra-

lory, some congregate in prodigious flocks. See BRONZE-WING. CARRIER PIGEON: DOVE: FRUIT PIGEON: GOURA: GROUND-DOVE: PARTRIDGE PIGEON: PASSENGER PIGEON: PIGEON: TURTLE-DOVE: VINAGO.

COLUMBINE, a. *kŏl'ŭm-bīn* [L. *columba*, a dove]: pertaining to a pigeon or dove; dove color: N. the heroine in a pantomime, mistress of harlequin. COL'UMBAR'Y, n. *-bĕr'ĭ*, a pigeon-house.

COLUMBINE, n. *kŏl'ŭm-bīn* [OF. *colombin*, dove-like—from L. *columbīnus*, dove-like—from *columba*, a dove: may be only *column*, and *bine*—from AS. *bindan;* Icel. *binda*, to bind, as in wood*bine*], (*Aquilegia*): genus of plants of the nat. ord. *Ranunculaceæ*, having five colored sepals, which soon fall off, and five petals each terminating below in a horn-shaped spur or nectary. They are natives of the temperate and colder regions of the n. hemisphere. One, the Common C. (*A. vulgaris*), is found in woods and has long been a familiar inmate of flower-gardens It is a perennial, generally three or four ft. high, with flowers, usually purple, of curious structure and considerable beauty. C. was formerly much esteemed for medicinal virtues which are now seldom heard of.—Some other species are very ornamental.

Common Columbine (*A. vulgaris*).

COLUMBO (root): see CALUMBA.

COLUMBRETES, *kō-lŏm-brā'tēs*, or COLOMBRETES, *kō-lōm'brā-tēs:* group of small Spanish islands in the Mediterranean, 29 m. s.e. of Cape Oropesa, about lat. 39° 50′ n., long. 0° 45′ e. They were formerly a resort of pirates and privateers, but are now a military station. They are of volcanic origin, rise from the sea in rugged and broken masses, and are surrounded and separated from each other by deep water. The largest island, Santa Maria de C., has a good harbor, a hill called Monte Colibre, and many dwarf olives and other small trees; it yields crops of rye, maize, etc., but is infested with snakes.

COLUMBUS, *kō-lŭm'bŭs:* a city and county seat of Muscogee co., Ga., on the e. bank of the Chattahoochee River, on the Cent. of Georgia, Seaboard A. L., and Georgia F. & A. railroads. Steamers connect the city with Appalachicola, Fla. Columbus was laid out in 1828, on land taken partly from an Indian reservation. In 1845 it had a cotton mill and considerable cotton trade, but in 1846 fire nearly destroyed the city.

The first iron foundry was built in 1853, and during the Civil War C. supplied the Southern armies with clothing, shot and shell, and swords. The last battle of the war east of the Mississippi was fought here, when the place was captured by Wilson 1865, 16 April. C. is famous for its cotton manufacture which is so extensive that the city has been named 'the Lowell of the South.' The large mills operate some 155,000 spindles and 4,500 looms, employ 4,000 hands, pay $1,000,000 a year in wages and use about 50,000 bales of cotton a year. The Eagle and Phoenix were the pioneer mills of large manufacture; the Coweta Company operate 50,000 spindles, and the North Highland Mills have one of the finest equipments in the South. The total receipts from the 5 cotton warehouses are about 165,000 bales a year. There are also cotton compressors and ginning works, cotton-seed oil mills, etc. Several large companies supply the city with water and electric power, affording a great extension of industry. The iron industry ranks next to cotton. The Columbus Iron Works (including the Southern Plow Company) and the Goldens Foundry and Machine Company are extensive plants and manufacture agricultural implements, cotton screws and compressors, engines, boilers, etc. There are also grist mills, wagon and barrel factories, syrup and sugar refining works, show-case works, etc. C. being a great distributing center for Georgia and Alabama has a very large trade. The city has many fine buildings among which may be mentioned the Masonic Temple, Odd Fellows Building, Y. M. C. A., and the ($60,000) Central of Georgia station. There are 25 churches, some of them splendid structures, and a fine public library. C. being the first city in the South to adopt graded schools and manual training, her educational system is excellent, intelligently and effectually managed. The mill companies take more than usual interest in the operators, establishing villages and schools for their welfare. The city has fine streets, an electric railway system; is governed by a mayor, elected for 2 years, and a council (elected) which appoints the other city officers. Pop. (1910) 20,554.

COLUMBUS, *kō-lŭm'bŭs:* city in Bartholomew co., Ind., 41 m. s. of Indianapolis, on the Penn., Big Four, Ind., Col. & Southern Traction. C. was first settled about 1815. Wm. Ruddick, Jesse Ruddick, Solomon Stout, County Commissioners, laid out the town of Tiptonia (now Columbus). It became a borough in 1821 and a city in 1865. The principal business is manufacturing, aggregate capital, $5,540,000, with an annual product valued at $8,451,000, and an annual pay-roll of $1,000,000. There are 3 banks with a combined capital of $250,000 and deposits of $1,949,628. The principal buildings are the High School, Court House, City Hall, Carnegie Library, and churches of the various religious denominations. Pop. 8,813.

COLUMBUS, *ko-lŭm'bŭs*, the county-seat of Cherokee co., Kan., in the southeastern part of the state, situated on the Kansas City, Ft. S. & M. and the St. Louis & S. F. R.R.'s. It is in an agricultural and mining district, coal and zinc being found in the neighborhood. Pop. 2,390.

COLUMBUS, *ko-lŭm'bŭs*, a city and county-seat of Lowndes co., Miss., situated on the Tombigbee river and on the Mobile & O. and the Southern R.R.'s, 150 m. s.e. of Memphis and the same distance n.e. of Jackson. It is the farming trade centre of the country, and has a large cotton-mill, machine shops and lumber-mills. It is the seat of the State Industrial Institute and College for girls and of Franklin Academy. Pop. (1900) 6,484; (1910) 8,988.

COLUMBUS, *ko-lŭm'bŭs*, the county-seat of Platte co., Neb., in the eastern part of the state, situated on the Loup river, near the Platte, and on the Union Pacific and the Burlington & M. R.R.'s. It has various manufacturing interests and is the seat of a Roman Catholic academy. Pop. (1900) 3,522; (1910) 5,014.

COLUMBUS, *ko-lŭm'bŭs:* city, cap. of Ohio and county seat of Franklin co. It is built on a rich alluvial plain near the centre of the state, on the Scioto river, 110 m. n. e. of Cincinnati; lat. 39° 57′ n., long. 83° 3′ w. It was laid out 1812, the site being selected by commissioners appointed by the legislature 1810. Lots were sold 1812, June 18, and a bridge and sawmill erected the next year. The *Western Intelligencer* was brought from Worthington, 1814; its title was changed, 1825, to the *Ohio State Journal.* The state officers removed from Chillicothe 1816, and the legislature met, Dec., in a state-house costing $85,000. About this time the Franklin bank was incorporated. Pres. Monroe passed through 1817. The Ohio canal was opened 1825. C. grew apace, was laid out in regular squares with broad streets, and incorporated as a city 1834. The *Ohio Statesman,* founded 1837, was the only paper from that time till 1853; S. S. Cox was long one of its editors. The Columbus and Xenia railroad opened travel to Cincinnati 1850. The Cleveland, Columbus and Cincinnati railroad was finished 1851, the Central railroad to Zanesville 1852, and the Columbus, Piqua and Indiana 1853. There is now abundant railway communication, 18 steam railroads radiating to all parts of the state, and a splendid interurban street railway system. There are nearly 300 manufacturing establishments, representing an investment of $35,000,000, including steel and iron works, blast furnaces, and manufactures of carriages, trucks, cars, cash registers, watches, furniture, agricultural implements, mine, mill and farm supplies, wood products, beer and liquors, stoves, cloth fabrics, clothing, medicines, automobiles, etc., the output representing a value of $105,000,000. Columbus has a large mercantile trade, both wholesale and retail. The coal and iron interests are large and important. There are 6 na-

tional and many private banks, trust companies, building and loan associations, with a combined capital of $25,000,000. Columbus contains a large number of fine public buildings, and many religious, professional, educational and benevolent institutions, the more noteworthy being the state house, covering nearly 3 acres and costing $2,500,000; the government building; the pension office, city hall, board of trade building, Ohio penitentiary, the State Insane Asylum (costing $2,000,000); state institutions for the education of deaf-mutes, blind, and imbecile youth; Ohio State University; Capital City University; and St. Mary's Academy. The city contains many handsome residences; the streets are wide and well paved and lighted; the business buildings are modern and commodious, as are also the railway stations. Columbus has about 20 private hospitals, and 1 dental and 3 medical colleges. The school system is thoroughly organized, with 38 large buildings, four devoted to high school purposes, with accommodations for about 20,000 pupils. There are nearly 50 churches of the various denominations, with a total membership of 75,000. The water and sewerage system of the city is good; natural gas is largely used for domestic use; the police and fire departments are well organized. Pop. (1910) 181,511.

COLUMBUS, *ko-lŭm'bŭs*, BARTOLOMMEO: abt. 1432–1514; b. Genoa; elder brother of Christopher. He was making charts at Lisbon 1470, and is supposed to have sailed to the Cape of Good Hope with Diaz. Sent to England by his brother, he gave Henry VII. a map of the world, but appears to have secured no help. Before his return Christopher had discovered America and set out on his second voyage; C. was honorably received at the Spanish court, and sent with three ships to Hispaniola, where his brother made him *adelantado* of the Indies. In this position he was confirmed, after sharing the discoverer's imprisonment, and made lord of Mona Island, near Santo Domingo, with 200 Indians as a body-guard. He acted well in his office, but was allowed little real power. He founded the town of Santo Domingo, 1496, and died there.

COLUMBUS, *ko-lum'bus*, CHRISTOPHER (Latinized form of Italian *Colombo*, and Spanish *Colon*): great navigator who added a new hemisphere to our globe: 1436 (or 46)–1506, May 20; b. probably at or near Genoa. Though virtually the greatest man of his era, there is little definite information about his family and his early life. It appears, however, that he was son of a wool-comber; that he attended for some little time the then great school of learning in Pavia, where he showed a taste for astronomy and cosmography; and that he early went to sea, and made several voyages in the Mediterranean. Settling in Lisbon 1470, he there married the daughter of an Italian named Palestrello, who had distinguished himself as a navigator in the Portu-

COLUMBUS.

guese service, and with her obtained some valuable charts, journals, and memoranda. Lisbon, at this time, was the headquarters of all that was speculative and adventurous in geographical discovery; and here, while constructing maps and charts for the livelihood of his family, C. appears to have first imbibed that idea of land to the westward, which he was destined, after long disheartening years, to establish as fact—the land, indeed, not being, as he had supposed it, a prolongation of the eastern shores of Asia, but a new western continent. With the view, apparently, of better qualifying himself for his great enterprise, C. made several voyages to the Azores, the Canaries, and the coast of Guinea—then the limit of European navigation in this direction. Not until about 1482 or 3, did C. find opportunity to lay his scheme before John II. of Portugal. This monarch referred it to a junto of nautical and scientific men, who decided against it. The king, however, meanly taking advantage of a detailed plan obtained from C. under false pretenses, secretly sent out a vessel to examine the route. Too timid to venture far from the beaten-track, the pilots soon returned to Lisbon, to throw ridicule on the project. Disgusted with the duplicity of his sovereign, C. secretly left Lisbon in 1484, taking with him his little motherless boy Diego. He found his way to Genoa, where the republic, before whom he unfolded his scheme, treated it as the silly product of a visionary brain; and it is said that he met like treatment from the Venetians; but it appears doubtful whether he at this time communicated with them. Disappointed, but not despairing, for C. was buoyed up with the belief that Heaven had commissioned him to plant the banner of the the cross upon those shores which as yet appeared to exist but in his own imagination, C. turned his steps toward Spain. Weary and hungry, he stopped one day at the gate of the Franciscan convent La Rabida, in Andalusia, to beg some bread and water for his child. This day was the turning-point in his career. The superior of the convent, Juan Perez de Marchena, passing at the moment, entered into conversation with the traveller, and was so struck with the grandeur of his views, that he used all his influence to procure him the favorable consideration of the king and queen. It was not, however, until seven more years of disappointments had passed over—during which C. had applied to other courts, and without avail—that he found himself in command of three small vessels, only one of which was decked, with 120 men, ready to start on his adventurous enterprise. C. claimed, as reward, to be nominated high-admiral, and gov.gen. and viceroy over all the lands he discovered, with a tenth of the produce of the countries. C. set sail from the bar of Saltes, near Palos, 1492, Aug. 3. Delaying a month at the Canaries to refit, he started thence, Sep. 6, over unknown seas. His crew soon began to interpose their timid fears, and when these were unavailing, to express their open disaffection; but equally disregardful of both, C. bore steadily westward; himself, however, not without misgiving as to what the variation in the needle (not before discovered

portended. On. Oct. 12 his perseverance was rewarded with the sight of land, which proved to be one of the Bahama Islands. Here he solemnly planted the cross, giving the island the name of San Salvador. After discovering several other of the West India Islands, including Cuba and Hayti, or San Domingo, at the latter of which, called by him Hispaniola, he settled a small colony, C. set sail again for Spain, where he arrived 1493, Mar. 15, and was received with every demonstration of joy and admiration, as well by the people as the court. In Sep. he set sail from Cadiz on a second expedition, with 17 ships and 1,500 men. In this voyage, he discovered the Caribbee Islands, Jamaica, etc.; but calamities at home forced him to return in 1496. Having cleared himself with his sovereigns, he, 1498, set out on a third expedition. This time, steering more to the southward, he discovered Trinidad, and the mouths of the Orinoco, and landed at Paria, on the coast of S. America. After these discoveries, C. steered for Hispaniola, where he found everything in disorder. The king's ear had been again abused; an officer named Bovadilla had been appointed to supersede C. as gov., and by this person C. was sent home in chains. This unworthy treatment excited the indignation of the Spanish people to such a degree, that Ferdinand was fain to disavow all knowledge of the disgraceful affair. But all C.'s efforts to obtain redress from the king were fruitless. The spirit of adventure, however, which had borne him up amid so many disappointments, was not to be crushed by injustice. It still burned bright and strong as ever within the great old man, who, 1502, May 9, with four vessels and 150 men, set out once more to seek a passage uniting the Atlantic and Pacific oceans, which he imagined lay somewhere between Honduras and Paria. But the mutinous character of his crew forced him aside to seek for gold, and after many difficulties and disasters, and having added little of importance to his previous discoveries, he returned to Spain 1504, Nov. Isabella was dead; Ferdinand proved basely ungrateful; and so the noblest navigator the world has seen, was permitted to die in poverty at Valladolid. To make up somewhat for his injustice, Ferdinand gave C. a pompous funeral, and erected a magnificent monument to his memory. The body of C. was carried in 1536 to San Domingo, and deposited in a niche in the cathedral. In 1795, a Spanish admiral opened one of four niches, removed what he supposed were the remains of C., and took them to Havana, where they were placed in the cathedral. The Spanish govt. officially declared these remains to be those of C., and caused a grand monument to be erected over them. In 1887, July, a minute portion of the remains in Havana was taken to Genoa, and deposited in a tomb with ceremonial pomp in the navigator's native city. Some investigators have published a mass of evidence tending to show that, by mistake, another body than that of C. was removed, and that his remains still repose in San Domingo.

COLUMBUS, Fernando: 1488, Aug. 15—1539; b. Spain; son of Christopher C. and Beatrix Henriques, of Cordova. At an early age he became a page to Queen Isabella; studied mathematics, navigation, and cosmography; accompanied his father on his fourth voyage, and his eldest brother, Diego C., to Hispaniola: then went with Charles V. to Italy and Germany, and after spending some time travelling in Asia and Africa became a priest. In the latter part of his life, he applied himself to study and literature, associated with the most learned men, collected a large and rich library which he bequeathed to the cathedral of Seville, and wrote *Historia del Almirante Don Cristóbal Colon* (Madrid, 1530).

COLUMBUS, or COLON, *ko-lōn'*, Louis: grandson of the discoverer, and son of Diego C. (1472–1526) and of a niece of the Duke of Alva; 16th c. He abandoned his hereditary claim to be viceroy of the East Indies 1540, and was pensioned and made Duke of Veragua and Marquis of Jamaica.

COLUMELLA, n. *kŏl'ŭm-ĕl'lă* [L. *columella*, a small column or pillar—from *columna*, a column]: in *bot.*, the central column or axis of the spore-cases (capsules) of mosses; the central axis which remains, formed of the placentas, when the carpels of some fruits have separated from each other and from them; in *zool.*, the central axis round which the whorls of many spiral univalves are wound; the central pillar found in the thecæ of many corals; in *anat.*, the central part of the cochlea of the ear.

COLUMELLA, *kol-u-mel'la*, Lucius Junius Moderatus: most learned of Roman writers on practical agriculture: earlier part of 1st c. after Christ; b. Cadiz, Spain. For some time, he resided in Syria, but lived chiefly at Rome, and died, probably at Tarentum. His great work, *De Re Rustica*, in 12 books—the 10th, On Gardening, is versified—is addressed to one Publius Silvinus, and treats of arable and pasture lands, culture of vines, olives, etc., care of domestic animals, etc., respective duties of masters and servants, etc. A supplementary treatise relates to trees. This ancient *Book of the Farm* is written in good Latin, and the information is copious, though not precise, and in some points of questionable accuracy. The best editions of C. are by Gesner (1735 and 73) and Schneider (1794–97.)

COLUMN, n. *kŏl'ŭm* [L. *columna*, a round pillar: It. *colonna:* F. *colonne*]: a round pillar or shaft used to adorn or support a building; any body pressing downward perpendicularly on its base and of the same diameter as the base, as a column of water, air, or mercury; a body of troops drawn up in deep files; a succession of companies or parts of companies from front to rear, parallel to each other; a perpendicular division of the page of a book; a perpendicular line of figures; in *bot.*, the solid body formed by the union of the styles and filaments in some plants; the cylindrical body of a sea-anemone. COLUMNAR, a. *kō-lŭm'-nĕr*, formed in columns; having the form of columns; like a column. COL'UMNED, a. *-ŭmd*, adorned or provided with columns. COLUMN-LATHE, a dentist's or watchmaker's lathe on a vertical extensible post to accommodate an operator in a sitting or standing posture. COLUMN-ORDERS, the Doric, Ionic, and Corinthian orders of architecture, so named from the important part filled in them by the different styles of columns. COLUMN-RULE, the name given to pieces of brass of different thicknesses, made type-high, and used to separate columns of type. *Note.*—Strictly speaking, a *pillar* supports something, while a *column* is a monolith and stands alone, not affording support to a part of a structure, but this distinction is not observed.

COL'UMN, in Architecture: pillar or post, usually cylindrical in form, used for support of a roof, entablature, or other superstructure. As the earliest habitations in almost all countries were formed of wood, it is unquestionable that the earliest columns consisted of the trunks of trees. It is said that even at the present day the Greek peasants of Asia Minor construct their wood-huts so as almost exactly to resemble the form and disposition of parts which are found

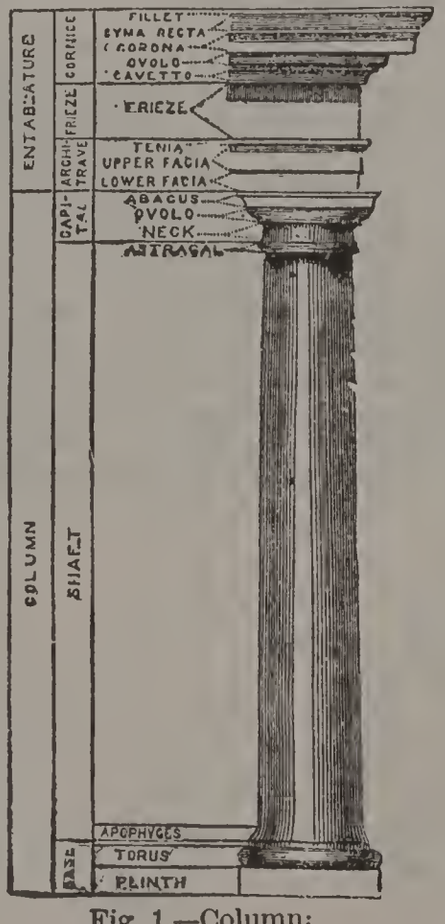


Fig. 1.—Column: Tuscan, with details.

Fig. 2.

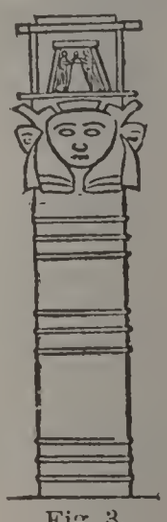


Fig. 3.

in the great architectural monuments of classical antiquity. That the Greeks actually made use of wood in the earliest time, even for their monumental structures, is known on the testimony of Pausanias, who mentions a monument in the market-place at Elis which consisted of a roof supported by pillars of oak; and Pliny records that the temple of Juno at Metapontum was supported by pillars made of the stems of vines. From these facts, it is natural to conclude that the stone columns which came first into use would be imitations of the trunks of trees; and this we are in a condition also to prove historically, many of the largest stone columns in Egypt—where, from the scarcity of wood, they were earlier introduced than elsewhere—being manifest imitations of the trunk of the palm (figs. 2, and 3). In order to prevent them from being forced into the ground by the superincumbent weight these early wooden columns were placed upon one or more large flat stones, and on the top another stone was placed, to preserve them from the decay which the rain sinking into the wood would have occasioned. In these primitive arrangements, is plainly seen the germ of the three principal parts of the classical C.—the shaft, the base, and the capital. As the Doric style of architecture was the earliest of the classical

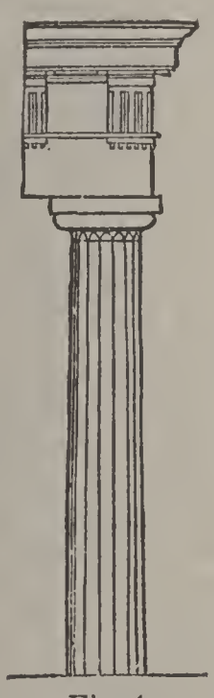


Fig. 4.

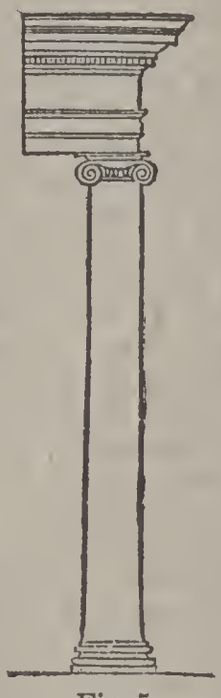


Fig. 5.

Fig. 6.

styles, the Doric is naturally the simplest and most severe of the classical columns. One of its most striking peculiarities is what at first sight seems to be the absence of the base (fig. 4). The true account of the matter, however, is, that all the columns in the same line of a Doric temple stand on one base, whereas, in the other orders, each C. has a separate base. But it is in the capitals in all the orders, Egyptian, Classical, and Gothic, that columns differ from each other most strikingly (see below). As classical architecture advanced, greater lightness and elegance were sought; and this, as regarded the C., was obtained

by increasing the height, and diminishing the proportional thickness of the shaft. In the Ionic and Corinthian orders (figs. 5 and 6), as compared with the Doric, this peculiarity is distinctly seen.

In almost all columns, the shaft tapers gradually from the bottom to the top, thus imitating the natural growth of a tree, and at the same time conforming to a mechanical rule for obtaining the greatest amount of strength in upright bodies. But in place of tapering regularly, the shaft was generally made with a slight swelling toward the middle, called the *entasis*, and had for the most part in all the classical orders striped incisions from top to bottom called flutes or channels, which were regularly worked, and varied in number from 20 to 32: see FLUTING. The relation which subsisted between the height of the C., and its diameter at top and bottom, and between these and the entablature, has been calculated with the greatest possible precision in all the principal classical examples, and will be found stated in all professional works on classical architecture. The shaft usually consisted of several cylindrical blocks accurately fitted to one another, while the capital was commonly hewn out of a single stone. The separate portions of the shaft were fixed together, not by mortar or cement, but by iron cramps, which were fitted into holes in the centre, and thus rendered invisible. Sometimes columns of immense size were hewn in the quarry of one piece of stone, and then rolled over the ground, and raised to their destined positions by various mechanical contrivances. Columns were often used in classical times as now in the interior of buildings to support the roof or galleries, as well as for decoration; and this custom seems to have prevailed in the halls of persons of great distinction even in Homeric times. In the ancient Basilica (q.v.) a line of columns separated the central space which was open to the sky from the aisles of the building, while they also supported the galleries above the aisles. These columns were the origin of the piers or pillars by which the nave is divided from the aisles in Christian churches. The same arrangement prevailed in the Roman atrium. When, in order to support the roof which covered the gallery or any other superstructure, a second row of columns was introduced, it was usually of the lighter styles, Ionic or Corinthian, the lower columns being commonly Doric. Single columns were erected for various purposes, as for mooring ships in harbors, or to commemorate persons of note, or national events. See PILLAR.

Capitals.—In classical architecture, it is by the capitals of pillars, more than by any other feature, that the different orders are distinguished, very much as the Gothic styles are marked by the form of the arch. Till the period of the renaissance, the head of a column, in English, was called chapiter (chapter), its diminutive being chapitrell. The three capitals which are all that belong to pure Greek architecture are described in Thomson's well-known lines (*Liberty*), so concisely and accurately, that it is needless to dwell on them in prose.

'First unadorned,
And nobly plain, the manly Doric rose;
The Ionic then, with decent matron grace,
Her airy pillar heaved; luxuriant last,
The rich Corinthian spread her wanton wreath.'

To the three Greek orders, the Romans added two others: the Tuscan, a variation on the Doric, or rather a corruption of it; and the Composite, a combination of the Ionic and Corinthian, the proportions and general character of the Corinthian being retained, but the Ionic volutes being substituted for the Corinthian leafage. As the trunks of trees placed upright, so as to support the roof, unquestionably led to the introduction of the stone pillar, it may be that the capital was suggested by the boughs with which such trees might be supposed to be surmounted, or the garlands with which, on festive occasions, they were probably encircled and crowned. At first, when the power of working in stone was limited, imitation of foliage was scarcely attempted; but the original idea being adhered to, it came at last to be carried out with great success in the Ionic and Corinthian capitals of classical architecture, and in all of the more advanced of the Gothic styles.

The forms of Gothic capitals are exceedingly various. Beginning with the Romanic—often nothing more than a modification of the Doric, or a further debasement of the Tuscan, the sides being truncated or flattened, and some of the moldings omitted—they advance rapidly in adornment; and in the style called Early English, they already frequently consist of a mass of foliage, cut with great boldness and freedom, so that the stalks and more prominent of the leafage are entirely detached. It is remarkable that, in the decorated style, the capital lost much of the richness which it possessed in the earlier styles, often consisting only of plain mouldings, with or without a ball-flower (q.v.), cut on the bell or bowl of the capital. Where foliation is introduced in this style, it is usually worked with greater freedom, and is free from the stiffness which characterizes earlier work. Animals, figures in armor, heads of bishops in mitres, and the like, are oftener found in the decorated style, though their introduction was not unknown at a much earlier period. In the perpendicular style, the capitals were stiffer in form, and generally less ornamented than in any of the others; though even here foliage is often introduced, as in the accompanying example from the cloisters of Christ Church, Oxford.

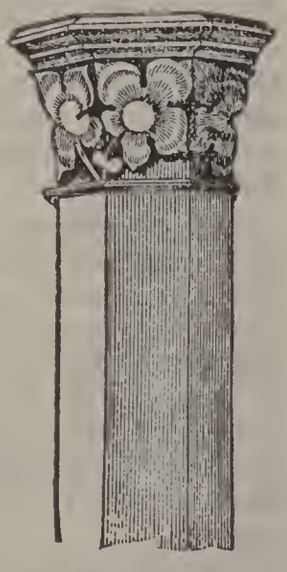


Fig 7.

The only invariable characteristics of capitals seem to be something like a molding at the upper part of the shaft, more or less complicated according to circumstances, and some sort of Abacus (q.v.) or flat portion on the top, on which the architrave rested in the classical orders. These characters belong even to the Egyptian capitals, which in

many other respects resemble those of the other styles. The foliation of Egyptian capitals is generally taken from the vegetation peculiar to the banks of the Nile (fig. 2); but the capitals in this style, particularly in its later examples, were infinitely varied both in decoration and in form.

COLUMN, in Military Evolutions: mass of soldiers several ranks in depth, presenting a formation different from that which arises from spreading them out *in line*. There may be columns of brigades, of regiments, of battalions, or of companies; presenting a front of limited width, but a depth depending on the number of elements in the column. If a battalion consists of ten companies, then a 'battalion in column' has all the companies posted one behind another. According to the density of the column, it is called *open* or *close*. In a battalion, when the distance between any one company and the one immediately before it is such as to admit of their wheeling into line, the formation is called *open* column; when the distance between the front rank of one company and the rear rank of the one before it is only a few yards, it is *close* column; when intermediate between these two, it is *half-distance* column. The relative advantages of column and *line*, in drawing up troops for action, are among the questions closely studied by the commanders of armies; the French, as a general rule, have rather favored the formation in columns; the English that in line. Sometimes the name column is given to that which, in effect, is a small army.

COLURES, n. plu. *kŏ-lôrs'* [Gr. *kolouros*, dock-tailed—from *kolou'ein*, to cut; *oura*, the tail]: in *astron.*, the two circles which pass through the four cardinal points of the ecliptic—the equinoctial and solstitial points—and intersect at the poles.

COLYMBIDÆ, *kol-ĭm'bĭ-dē:* family of web-footed birds, distinguished by short wings, legs placed so far back that the bird always assumes an erect position when standing, broad flat tarsi (*shanks*), and a compressed bill, pointed at the tip. They all are extremely aquatic in their habits, and possess great powers of diving as well as of swimming. Some of them have all the front toes perfectly webbed, as the loons or divers (*Colymbus*); others have the feet lobed, each toe with a separate membrane, as the grebes (*Podiceps*).

COLZA, n. *kŏl'zä* [F. *colza*, wild cabbage—from Flem. *koolsaed*, cole seed or rape-seed (see Cole)]: a variety of cabbage or rape whose seeds yield an oil, called *colza-oil*. See Rape.

COM-, *kŏm-*: prefix, another form of Con, which see.

COMA, n. *kō'mă* [Gr. *komē*, a head of hair]: the stem of a plant terminating in a tuft or bush; the hairy appearance that surrounds a comet. Co'mate, a. *-māt*, hairy; of a bushy appearance.

COMA, n. *kō'mă* [Gr. *kōma*, a deep sleep]: lethargy; a

dozing; a kind of stupor or insensible state, in certain diseases; intense propensity for continuous sleep. COMATOSE, a. *kŏm′ă-tōs′*, also COM′ATOUS, a. *-tŭs*, excessively drowsy; dozing without natural sleep; lethargic. Coma differs from natural sleep in its characters, as well as in the circumstances under which it occurs. In coma, the patient lies on his back, and is either simply insensible to external impressions, or has a confused and dull perception of them, with restlessness and low delirium (q.v.). The former kind of coma occurs in apoplexy and epilepsy, and in many other organic diseases of the brain and its membranes, of which, indeed, it may be said to be the natural termination. It is also seen in narcotic poisoning, and most characteristically in poisoning by opium (q.v.). In the most fatal forms, the breathing is very slow and noisy (snoring or stertorous), accompanied with puffing of the cheeks; the pulse is at first strong and regular, afterward feeble; there is often lividity; and the pupils are either contracted or excessively dilated, but in either case immovable, and totally insensible to light. In the second variety of coma there is perpetual restless delirium, without enough sensibility to lead to spontaneous and regular voluntary movements; the patient mutters slightly, and grasps feebly and without purpose at any object in his way; the pupils are usually contracted, and the tongue is apt to be dry and brown. This kind of coma is mainly seen in many fevers, and forms one of the modes of their fatal termination. The treatment of coma is that of the disease or accident leading to it. When there is a reasonable chance of recovery, the patient must be roused to consciousness as much as possible, either by frequent movements or strong impressions on the skin, or by the use of galvanism, so as to maintain the respiration (see OPIUM).

COMA BERENICES, *kō′ma bĕr-e-nī′sēz* [Lat., Berenice's hair]: small and close cluster of stars near the equinoctial colure, s. of the tail of the Great Bear.

COMACCHIO, *kō-mâk′kē-ō:* fortified town of central Italy, province of Ferrara, 3 m. from the Adriatic. The lagoon or marsh, in the midst of which it is situated, is about 140 m. in circumference, and is shut out from the Adriatic by a narrow belt of mud. Its position is very favorable for the manufacture of salt, of which 2,000,000 lbs. are said to obtained annually. Pop. 8,000. Comacchio is the seat of a curious industry—eel culture, the principal employment of its inhabitants. A series of canals have been constructed leading from the Adriatic to admit the fry of the eel, the mullet, the sole, and other fishes into the lagoon, where they are fattened, and speedily attain a marketable value. The fishery is carried on chiefly in the late autumn, when the waters of the lagoon are excited by storms. The fish, then seeking an outlet to the sea, find their way into certain labyrinths leading into reservoirs constructed at the termination of the canals, where they are caught in immense quantities. Religious ceremonies

inaugurate the commencement of the season, and when any body of fishermen in one night capture 48,000 lbs. weight of fish, a feast of fish is held, and great rejoicings take place. The eel-harvest occupies 12 to 15 weeks; and some idea of its extent may be formed from the fact, that from 1798 to 1813 the annual 'take' averaged close upon 2,000,000 lbs. weight. From 1813 to '25, the average was about 1,612,600 lbs. per annum. An accident for some years greatly reduced these quantities, but the supply is again increasing, being upward of a million lbs. per annum. The fish are prepared for the market by partial cooking in a large kitchen built for the purpose, the eels of moderate size being roasted alive, in order to their better preservation. The larger fish are chopped into lengths, the heads and tails being sold for the benefit of the poor. Large quantities of the eels are also salted and dried. The workmen, who are lodged in barracks, and submit to a strict discipline, are allowed one and a half pounds of fish per diem. The money-value of these fisheries may be estimated from the fact, that 1 lb. weight of eel-fry will, in the course of three or four years, be worth to the cultivators of the lagoon a sum of over $200.

COMANCHES, *ko-măn'chĕz:* Indian tribe of the Shoshone family found in Texas, N. Mex., and Colo., and claiming to come from the west. They were called by themselves Naiini or live people, but by the Kansas Padoucas, a name adopted by the French, who visited them 1719 and '24. The name Comanches was given by the Spaniards, who reduced them to temporary quietness 1783, after long warfare. They are a wandering and warlike race, living in skin lodges, fighting on horseback, and fond of incursions upon the whites, whether Mexicans or Americans. Their warriors were estimated, 1780, at 5,000, and 1847, at 2,500 or less; their whole number was placed, 1822, at 9,000, higher by Catlin abt. 1838, and 1872, at abt. 4,000. Expelled from a reservation in Texas, they were constantly troublesome. Those of the Staked Plains refused to settle, and were punished by Col. McKenzie at McClellan's creek, 1872. Some who were more amenable were placed in the s.w. part of the Indian Territory, between the Kiowas and Apaches. They number about 1,400.

COMART, n. *kō'mârt* [Gael. *comhard*, a comparison]: in *Shakespeare*, a comparison; also said to signify, an article; an agreement or covenant; a joint bargain.

COMATE, or Co-MATE, n. *kō'māt* [*con*, and *mate*]: a companion.

COMATE, a.: see under Coma 1.

COMATULA, n. *kŏm-ăt'ū-lă* [dim. of *coma*, a bush of hair; *comātus*, hairy]: in *zool.*, an existing species of the Crinoids, stalked in its early condition and free afterward; the feather-star.

COMAT'ULA: see Crinoideæ.

COMAYAGUA, *kō-mī-â'gwâ:* dept. of Honduras in its

s. central part; area, abt. 4,800, sq. m. It is mainly level, fertile, and watered by the Humuya river. Coffee, cochineal, etc., are produced in the plains, and cedar, mahogany, and lignum-vitæ are abundant, but Comayagua is known chiefly for its excellent cattle. It is rich in undeveloped mineral resources, ochre beds, marble, and mines of copper and silver. These are found in the mountains of San Juan or Guajiquero in the s. part, where the Lenca Indians raise grain, fruit, and mules. The chief towns are Comayagua, the capital, Las Piedras, Opoteca, Espino, Goascoran, San Antonio del Norte, and Caridad. Many ruins seem to indicate a large and active pop. in former ages. Pop. abt. 75,000.

COMAYAGUA, *kō-mī-â'gwâ* (formerly Valladolid La Nueva): chief city of Honduras, Central America, 190 m. e. of Guatemala, in a fine but unhealthful valley, 1,800 ft. above the sea, on the right bank of the Humuya, which flows into the Pacific. The city was founded 1540, is the see of a bishop, has a cathedral, college, ecclesiastical seminary, several convents, and a rich hospital. Pop. 8,000: it was 18,000 previous to 1827, when the city was burned by the monarchical faction of Guatemala, and has never since wholly recovered.

COMB, n. *kōm* [Icel. *kambr;* Ger. *kamm*, a comb, a crest]: an instrument with teeth for arranging or cleansing the hair, also for preparing and cleaning wool or flax; the crest of a cock; the top or crest of a wave: V. to adjust, arrange, or clean with a comb. Comb'ing, imp. Combed, pp. *kōmd.* Comb'er, n. one who dresses wool: see Carding-comber, among *seamen*, the crest of a wave, breaking with a white foam. Comb'less, a. wanting a comb or a crest. Combings, n. plu. *kōm'ĭngz*, the dust from malted barley. Comb-saw, the *stadda* or hand-saw of the comb-maker.

COMB, n. *kōm* [AS. *comb;* W. *cwm*, a hollow, a valley]: the collective mass of cells in which bees store their honey. Comb, or Combe, *kōm*, also Coomb, in. *kôm* [W. *cwm*]: a hollow among hills, or an upland valley, generally narrow and without a stream of water. The word is allied to the Gr. *kymbos*, a cavity; *kymbe*, a vessel.

COMB, n. *kōm*, or Coomb, n. *kôm* [see Coomb]: an old Eng. corn-measure, containing four bushels.

COMB: instrument with teeth, for arranging the hair. Combs seem to have been used by the ancients rather for adjusting than for fastening the hair, the pin or bodkin (*acus*) having chiefly served the latter purpose. Both the Greek and the Roman combs were generally made of box-wood, obtained from the shores of the Euxine; but latterly, ivory combs came into general use among the Romans, as they had long before been among the Egyptians. The precious metals were also used for the purpose, as may be inferred from the golden combs ascribed to the goddesses; but this was probably rarer in ancient than in modern and mediæval times, as the C. was not anciently used as an ornamental fastening. Of the early use of gold combs by

Englishwomen, there is a testimony in the well-known ballad of *Sir Patrick Spens:*

'O lang, lang may their ladyes sit,
Wi' their gowd kames in their hair.'

Fig. 1 represents an ancient Irish long rack C. in the museum of the Koyal Irish Acad. The sides are hog-backed, and betwoen them are set the pectinated portions,

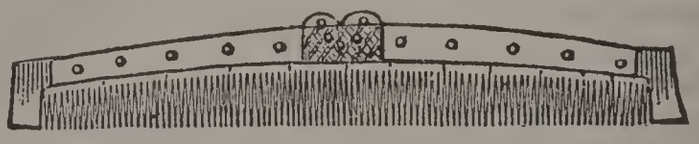


Fig. 1.

varying in breadth from half an inch to an inch and a quarter, according to the size of the bone out of which they were cut. The whole is fastened together with brass pins riveted. By this contrivance, any damaged portion could easily be replaced.

Fig. 2 is a specimen of a pocket fine-tooth C., from the

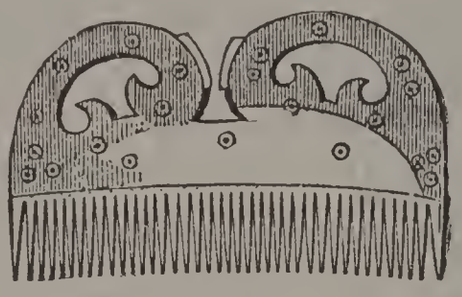


Fig. 2.

same collection; it is drawn two-thirds the size of the original.

Combs are of tortoise-shell, ivory, horn, wood, bone, metal, and india-rubber. The material is first made into plates of the size, shape, and thickness of the C , and then the teeth are cut. The old method of cutting the teeth is by the *stadda* or double saw, which has two blades of steel set parallel to each other, with a space between them equal to the thickness of the intended tooth. Combs with 50 or 60 teeth to the inch may be cut in this manner. The teeth are then thinned, smoothed, and finished by means of thin wedge shaped files. Instead of hand-saws, circular-saws of similar construction have been more recently used.

Many combs are now made by a method called 'parting.

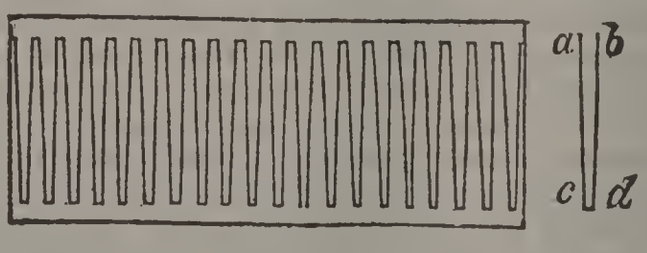


Fig. 3.

By the processes of cutting above described, the material corresponding to the spaces between the teeth is of course

wasted; by the method of parting, this material is made available to form the teeth of a second comb. The plate of horn, tortoise-shell, etc., is cut through by means of a stamping-cutter, consisting of two thin chisels inclined to each other, as *ac* and *bd*, which represent their edges; between these, and connecting the ends *c*, *d*, is a small cross-chisel. When this compound cutter descends with sufficient force upon the plate, it cuts one of the teeth shown in the figure. By simple machinery, the table carrying the plate is made to advance a distance equal to the thickness of one tooth while the cutter is rising, and thus the successive cuts are made as represented. A slight pull is now sufficient to part the plate into two combs, the teeth of which only require filing and finishing.

India-rubber combs, now so extensively used, are manufactured by pressing the caoutchouc to the required form in molds, and 'vulcanizing' or combining it with sulphur afterward for requisite hardness.

COMBACONUM, *kŏm-bâ-kō′nŭm:* city of s. India, in the Carnatic, 20 m. n.e. of Tanjore, 30 m. from the Bay of Bengal, lat. 10° 58′ n., long. 79° 26′ e. It was the capital of the Cholas, an ancient Hindu dynasty, and is esteemed a holy city. According to a native superstition, one of the tanks is filled every twelfth year from the Ganges by a subterranean channel 1,200 m. long. this water cleanses from sin, and thousands make annual pilgrimages to bathe in it. The town is built on a large scale, and has several pagodas and other notable buildings. The great gopura or gate-pyramid is over 100 ft. high, with twelve stories, the first of granite, the rest of stuccoed brick; it is covered throughout with figures of men and animals. Combaconum has a long bazaar and a fair trade; weaving is a principal industry. Pop. 54,307.

COMBAT, n. *kŭm′băt* [F. *combat*, a fight—from *combattre*, to fight—from L. *con*, together, and F. *battre*, to beat]: a fight; a contest by force; a battle, conflict, or strife: V. to fight; to struggle or contend with, for, or against; to act in opposition; to oppose or resist. Com′bating, imp. Com′bated, pp. Com′batant, n. *-tănt*, any person who fights; a duellist; a controversialist. Com′bative, a. *-tĭv*, disposed to fight or contend. Com′bativeness, n. disposition or inclination to fight.—Syn .of 'combat, v.': to fight; contend; resist; contest; oppose;—of 'combat, n.': engagement; battle; action; conflict; contest; fight; encounter; strife; rencounter.

COMBAT, Single: very ancient usage, evidenced by Goliath (1 Sam. 17), and by Ajax in the Iliad. The Norse practice of principals going alone to a small *holm* or island, to be free from disturbance while settling their quarrels by strength and skill, gave rise to the Saxon term *Holm-Gang*. In the days of chivalry the single combat received the strong support of law and custom, and was resorted to both in civil and in criminal cases. The accuser or plaintiff swore to the truth of his tale, the other gave him the lie, a gage of battle was thrown down and taken up, and they fought it

out under rules before an assembly, the supposition being that God would give victory to the right. The barbarous practice survives, without its excuse of superstition, in the modern duel. See DUEL: BATTEL, TRIAL BY.

COMBE, n. *kōm:* see under COMB 2.

COMBE, *kôm* or *kōm*, ANDREW, M.D.: 1797, Oct. 27—1847, Aug. 9; b. Edinburgh; bro. of George C. He studied medicine at Edinburgh and Paris, and in 1823 commenced to practice in his native city. In 1836, he received the appointment of physician in ordinary to the king of the Belgians, but his delicate health prevented him from retaining this office. Afterward, he became one of the physicians in ordinary to Queen Victoria in Scotland. His principal works are—*Observations on Mental Derangement* (1831); *The Principles of Physiology applied to the Preservation of Health*, etc. (1834; 15th ed. 1860); *The Physiology of Digestion considered with Relation to the Principles of Dietetics* (1836; 10th ed. 1860); and *The Management of Infancy, Physiological and Moral* (1840; 9th ed. 1860, revised by Sir James Clark; 10th ed. 1870). Mild, benevolent, and wise, Andrew C. won the esteem and admiration of all who had knowledge of him. His *Life and Correspondence*, published by George C., 1850, gives instructive record of his patient scientific combat with a serious pulmonary disease for nearly 30 years. His death was probably hastened by exposure to the poisonous air of an emigrant ship, in which he made a voyage to America; his experience led him to advocate, through the *Times*, a law regulating the sanitary arrangements in emigrant vessels. His letter on this subject appeared a month after his death, and was soon followed by a law to remedy the evil. C. also exerted himself successfully for the improvement of medical education. A list of his contributions to the *Phrenological Journal* and the *British and Foreign Medical Review* is appended to his *Life*. Dr. C.'s character is affectionately depicted by his friend Sir James Clark, in an introduction to the 9th ed. of *The Management of Infancy*.

COMBE, GEORGE: 1788, Oct. 21—1858, Aug. 14; b. Edinburgh: also educated there. Entering the legal profession, he became a writer to the *Signet*, 1812, and continued to practice till 1837, when he turned to scientific pursuits. As early as 1816, he made the acquaintance of Dr. Spurzheim, who visited Scotland. C.'s early aversion to Spurzheim's system gave way to a conviction that phrenology was based on fact. The result was his *Essays on Phrenology* (1819). Five years later, appeared his *System of Phrenology*, which reached a fifth ed. 1843, was reprinted in America, and translated into French and German. But his most important production is *The Constitution of Man considered in Relation to External Objects* (1828; 9th ed. 1860). This work endeavors to demonstrate, what it is strange should ever have been denied, the essential harmony of the nature of man with the surrounding world, and the necessity of studying the laws of nature, in order that we may realize the advantages of the external world, lessen our exposure to outward evils, and carry out successfully man's

physical, moral, and social improvement. C.'s doctrines, which now seem almost common-place truths, were violently opposed, being considered by many as inimical to revealed religion. They may be said to have given to the English-speaking public the key-note of modern physico-social reforms. Nearly 100,000 copies of the work have been sold in Britain; numerous editions have been printed in America, and it has been translated into French, German, and Swedish. C. contributed largely to the *Phrenological Journal* (20 vols., 1824–47). He travelled in Germany and America, and published *Notes* of his experiences. Mr. C. married, 1833, Cecilia, daughter of the celebrated Mrs. Siddons. Besides the works mentioned, he wrote *Elements of Phrenology* (1824; 9th ed. 1862); *Lectures on Popular Education* (1833; 3d ed. 1848); *Moral Philosophy* (1840; 3d ed. 1846); *Life and Correspondence of Andrew Combe, M.D.* (1850); *Principles of Criminal Legislation and Prison Discipline* (1854); *Phrenology applied to Painting and Sculpture* (1855); and *The Currency Question considered in Relation to the Bank Restriction Act, 7 and 8 Vict. c.* 32 (1855; 8th ed. 1858), etc. The latest of his works—on the importance of natural religion—is *The Relation between Science and Religion* (1857). C. was active and zealous, and lectured much on his favorite subjects, in Britain and America, and even in Germany. See the *Life* by C. Gibbon (1878); and C.'s views and articles on *Education,* collected by Jolly (1879).

COMBERMERE, *kŭm'bĕr-mēr* or *kōm'bĕr-mĕr*, Viscount (Stapleton Stapleton-Cotton): British field-marshal: 1773–1865, Feb. 22; b. Llewenny Hall, Denbighshire; son of Sir Robert Salusbury Cotton, baronet, of Combermere Abbey, Cheshire. Educated at Westminster School, he entered the army 1790, Feb., and distinguished himself in India at the battle of Mallavelly and the siege of Seringapatam. In 1807—in which year he succeeded his father in the baronetcy—he proceeded, with the rank of maj.gen., to the Peninsula, in command of a brigade of cavalry; and in 1810 was appointed to the command of the whole allied cavalry under the Duke of Wellington. He was in the battles of Talavera, Fuentes de Onoro. Salamanca—where he was second in command, and was severely wounded—the Pyrenees, Orthes, and Toulouse. For his brilliant services in the Peninsular war, he repeatedly received the thanks of parliament, and 1814, May 17, was raised to the peerage as Baron C. Although not at Waterloo, he had the command of the cavalry of the army of occupation in France; and in 1817 was appointed gov. of Barbadoes, and commander of the forces in the W. Indies. In 1822, he became commander-in-chief in Ireland; and in 1825 was nominated commander of the forces in India. In that position, he captured the almost impregnable fortress of Bhurtpore; and, 1826, Dec. 2, was raised to the rank of viscount. In 1834, he was sworn a privy councilor; 1852 succeeded the Duke of Wellington as constable of the Tower and lord-lieut. of the Tower Hamlets; and 1855 was made a field-marshal and G.C.B. He died at Clifton. See his Life (2 vols. 1866).

COMBES, *koomz*, JUSTIN LOUIS EMILE, French statesman: b. Roquecourbe, Tarn, France 1835, Sept. 6. He was educated in a Roman Catholic seminary for the priesthood, but subsequently studied medicine, and began practice in Pons, where he filled various posts of responsibility, such as those of mayor and county councilor. In 1885 he was elected to the senate, of which he was vice-president 1893–4, becoming minister of public instruction in 1895. He has been active in the re-organization of primary and secondary education. In 1902 June he succeeded Waldeck-Rosseau as President du Conseil des Ministres. In this capacity he has enforced the Association Act, abolishing liberty of teaching in France and aimed at the clergy. His opponents have claimed that this has been done with needless severity. It has caused widespread disturbances throughout the country. On his becoming prime minister M. Combes announced his intention to reduce the period of military service to two years, and to establish a general income tax.

COMBINATE, a. *kŏm'bĭ-nāt* [see COMBINE]: in *OE.*, betrothed; promised.

COMBINATION TONE: a resultant tone which arises from the sounding of two loud tones together.—SYN. 'resultant tone,' 'third tone.' Combination tones embrace Difference tones and Summation tones. The former are of at least two kinds: the first difference tone and the second difference tone. The pitch of the first difference tone corresponds to the difference in the vibration frequency of the two generating tones. The pitch of the second difference tone corresponds to two times the vibration frequency of the lower minus the vibration frequency of the upper generating tone. The pitch of the summation tone corresponds to the sum of the vibration frequencies of the two generating tones. Thus, in sounding the two tones a, 435 vibrations and C^2, 522 vibrations together, the first difference tone will be 87 vibrations, the second difference tone will be 348 vibrations (2x435—522), and the summation tone will be 957 vibrations (435+522).

Combination tones play an important role in the enrichment of musical clangs. They are most effective when the generating tones are consonant and within the same octave. Like overtones, they ordinarily pass unrecognized in music. (Two or more tones of the same pitch become one when sounded together. Thus, three organ pipes of the same pitch sounded in different parts of the room will be heard distinctly as one tone which assumes a location in a specific place outside of the sounding instruments. This is called Fusion sound or Phantom sound.)

COMBINE, v. *kŏm-bīn'* [F. *combiner* from mid. L. *combīnārĕ;* to unite—from L. *con*, together; *bini*, two by two, double]: to unite or join together two or more things; to link closely together; to cause to unite or bring into union; to unite, agree, or coalesce; to league together. COMBI'NING, imp. COMBINED', pp. *-bīnd'*. COMBI'NER, n. one who. COMBI'NABLE, a. *-nă-bl*, that may or can be

united. Com′bina′tion, n. *-bĭ-nā′shŭn* [mid. L. *combīnātus,* joined together, united]: close union or connection; an intimate union of two or more persons or things to effect some purpose; a union of particulars. Chemical combination, the tendency of certain substances to unite and form a new substance, possessing properties different from both, called a Chemical compound: for laws of chemical combination, see Atomic Theory. Combinations in mathematics: see Permutations. Combination-fuse, a fuse combining the principles of time and percussion, so that if the time-fuse fail to explode the shell after the proper interval, the percussion device will produce this effect when the shell strikes. Combinations-laws, laws relating to the combinations of masters and workmen: see Trades Union. Combination-pedal, a pedal acting upon the wind-supply instead of upon the draw-stops of an organ. Combination-room, a room in which the fellows of the different colleges in the Univ. of Cambridge meet after dinner for dessert and conversation. It corresponds to the common-room of Oxford and Dublin. Combinational-tone, a third tone produced when two musical notes are sounded together. It is also called the *grave harmonic* and the differential tone: see Chord.—Syn. of 'combine': to connect; attach; unite; agree; coalesce; confederate;—of 'combination': association; partnership; alliance; cabal; conspiracy; plot; faction; union; confederacy; coalition.

Note. *Combine* has been used as a noun indicating a union or contract between persons or companies having similar business interests: see Company; Corporation; Trust; Trade Union; Industrial Unionism; Cooperation; Socialism; Joint-stock Company; Partnership; Communism, etc.

COMBINED CONDENSANCE AND INDUCTANCE: see Electro-dynamics.

COMBRETACEÆ, *kŏm-brĕt-ā′sē-ē:* natural order of exogenous plants, consisting of trees and shrubs, all natives of tropical countries. It contains about 200 known species, most of which are characterized by astringency.

COMBS, *kōmz* or *kōmz,* Leslie: 1793, Nov. 28—1881, Aug. 21; b. Clark co., Ky.: soldier and politician. He was the youngest of 12 children of a revolutionary officer who early emigrated from Va. to Ky. In the winter of 1812–13 he alone carried dispatches to Gen. Harrison over 100 m. in the snow through a wilderness full of Indians. Made capt. 1813, Apr. he tried to carry news of succor to Harrison when besieged in Fort Meigs, but barely escaped capture in sight of the fort; in May he was wounded, taken prisoner, and forced to run the gauntlet. He afterward became an eminent lawyer, a whig politician and friend of Clay, state auditor, member of the legislature, and gen. of militia.

COMBUSTIBLE, a. *kŏm-bŭs′tĭ-bl* [F. *combustible*—from L. *combus′tus,* wholly consumed—from *con,* together; *ustum;* Skr. *ush,* to burn]: that will take fire and burn; having the

property of catching fire: N. a substance that will take fire and burn. COMBUS'TIBIL'ITY, n. *-bĭl'ĭ-tĭ*, the quality of taking fire and burning; capacity of being burnt. COMBUST'ION, n. *-bŭst'yŭn*, sometimes *kŏm-bŭst'shŭn* [F.—L.]: a burning; the action of fire on bodies capable of being burned; the chemical combination of two or more bodies producing heat, and sometimes both heat and light. SPONTANEOUS COMBUSTION, the tendency which many substances, or mixed substances, have of developing heat when undisturbed for a length of time, to such an extent, as to produce combustion, and often explosions, without the application of fire.

COMBUSTION: strictly, any manifestation of chemical energy accompanying combination and the evolution of much heat. As a rule, however, the term is connected with *incandescence*. If the reacting substances are gaseous the incandescence becomes *inflammation* i.e. a *flame* (q.v.) is produced. All instances of burning are cases of combustion and, as the active material in the atmosphere is oxygen, we usually regard as combustibles those substances, such as coal, wood, alcohol, etc., which combine readily with oxygen. Accordingly, we speak of this latter substance as a *supporter of combustion* and of the former as combustible bodies. These terms, are, however, purely relative, oxygen will burn as readily in the illuminating gas, or in alcohol vapor, as these bodies themselves burn in oxygen. Many substances burn in chlorine even more easily than in oxygen. Further, it is interesting to consider the change in our ideas regarding combustibles which would take place if the active constituent in the atmosphere were hydrogen instead of oxygen. This is actually the case in the sun's atmosphere. In such conditions it is possible that iron rust would be a valuable article of fuel, at all events wood and coal would be useless for this purpose. Theories of combustion have been numerous and have been almost identical with theories of chemistry. The current one was proposed by Lavosier in 1778, it recognizes the fact that combustion is accompanied by an increase in the weight of the body burnt and, therefore, the process is regarded as being a *combination*. According to the *phlogiston* theory, which preceded Lavoisier's work, combustion consists in a decomposition. For example, the earthy matter (litharge, lead oxide) remaining after the combustion of lead was regarded as being the element and lead as a compound of it with phlogiston. This was possible because the balance was hardly used in chemical investigations at that time, and even when it was employed the results, owing to its lack of delicacy, were inconclusive. If for phlogiston we use the word *energy* (q.v.) the theory in question expressed some important truths, for lead does contain far more energy than litharge. The *quantity of heat* given out by the combustion of a given quantity of substance is constant, irrespective as to the rapidity of the combustion, although the *temperature* may be quite different. This is easily understood

by considering that a certain weight of bread and butter, in so far as it is converted into carbon dioxide and water, will give out exactly as much heat if consumed in the body as if burned in a stove. In the former case the heat is produced gradually during several hours; in the latter the combustion may occupy only a few minutes. The body does not reach as high a *temperature* as the stove but it yields the same *quantity of heat.* See FUELS; FLAME.

COME, v. *kŭm* [AS. *cuman;* Ger. *kommen,* to come: Dut. *komen;* Icel. *koma,* to come, to fall, to please]: to draw near; to move toward; to arrive or reach; to happen or fall out; to advance and arrive at some state or condition; to sprout or spring as plants. COM'ING, imp.: N. act of sprouting; arrival; approach: ADJ. future; expected. CAME, pt. *kām;* did come. COME, pp. COM'ER, n. one who. To COME ABOUT, to fall out; to happen; to change. To COME AND GO, to flicker; to change. To COME AT, to reach; to gain. To COME BY, to get; to acquire. To COME IN, to yield; to become the fashion; to obtain; to accrue, as from an estate or from trade. To COME NEAR, to approach. To COME OF, to proceed, as from ancestors, or as an effect from a cause. To COME OFF, to escape; to get free; to take place, as a race. To COME ON, to approach; to make progress. To COME OUT, to be made public; to be introduced into general society; to publish. To COME OVER, to run over, as a liquid; *familiarly,* to get the better of any one. To COME ROUND, to recover, to revive. To COME SHORT, to be insufficient. To COME TO ONE'S SELF, to recover, as one's senses. To COME TO PASS, to happen. To COME UP TO, to amount to; to rise. To COME UPON, to invade; to attack. ALL COMERS, all persons indifferently. COMING-IN, in *OE.,* an income; a revenue; submission; beginning; introduction. COMING or COMING ON, in *OE.,* fond; forward.

COMÉDIE FRANÇAISE, *ko-mā-dē' frŏng-sāz',* or THÉATRE FRANÇAISE: theatrical association in Paris founded by Louis XIV., 1680. Three theatres were running that year, and he combined the two strongest companies under this title and created a monopoly for the new enterprise, to secure a greater perfection of comedy representation. A constitution was provided, and the members of the company were given partnership interests. While this was the formal foundation, it cannot be said to have been the origin of this great playhouse, for a company of comedians was in existence at the Théatre du Marais during the reign of Henry IV.; a second company built the theatre of the Hôtel de Bourgogne, where Corneille appeared, and two others afterward established the theatres of the Petit Bourbon and the Palais Royal. The theatre of the Hôtel de Bourgogne is regarded as the actual progenitor of the Comedie Française, and thus the year 1548 may be taken as the date of its origin. Louis granted the company a 'pension,' or subscription of 12,000 fr. per year, and this state aid has been continued, averaging in recent years 240,000 fr. per year. The partnership comprises 24 'sociétaires,' who share in the profits of the theatre, and are usu-

ally chosen from the 'pensionnaires' or actors playing by the year on fixed salaries. A 'sociétaire' is entitled to 24 shares worth 12,000 fr., and after 20 years' service draws a pension of 5,000 fr. per year. The total of the active personnel is 208 persons, who together receive 798-701 fr. in salary beside profits.

COMEDO, *kŏm'e-do*, pl. COMEDONES, *kŏm-e-dō'nēz* [L., a glutton]: a pimple, especially in acne on the face; arising from the retained secretion of the sebaceous glands. They are apt to accumulate in the follicles of the skin and to appear on the surface as small round black spots. When squeezed out they have the appearance of minute maggots or grubs with black heads. They are associated with a weak state of the skin as well as of the individual.

COMEDY, n. *kŏm'ĕ-dĭ* [F. *comédie*—from L. *comœdĭă;* Gr. *kōmoi'dĭă*, a village song—from Gr. *kōmos*, a merry-making, and *ōdē*, a poem]: a representation by actors in a theatre of the light and trivial every-day occurrences of life: see DRAMA. COME'DIAN, n. *-ē'dĭ-ăn*, an actor or player in comedy; a writer of comedy. COMEDIETTA, *kŏm-ē'dĭ-ĕt'tă* [It.]: a little comedy.—*Note.* Technically, any drama in which no death is represented is classed as a comedy.

COM'EDY: a dramatic representation of a light and amusing nature, in which are satirized pleasantly the weaknesses or manners of society and the ludicrous incidents of life. Comedy took its origin in the Dionysian festivals, with those who led the phallic songs of the band of revelers who, at the vintage festivals, gave expression to the exuberant joy and merriment by parading about, dressed up, and singing jovial songs in honor of Dionysus. These songs were frequently interspersed with extemporized jokes at the expense of the bystanders. Comedy first assumed a regular shape among the Dorians. The first attempts at it among the Athenians were made by Susarion, a native of Megara, about 578 B.C. Epicharmus first gave comedy a new form and introduced a regular plot. That branch of the Attic drama known as the Old Comedy begins properly with Cratinus. It lasted from 458 B.C. to 404 B.C. The later pieces of Aristophanes belong to the Middle Comedy. The chorus in a comedy consisted of 24. The Middle Comedy lasted from 404 B.C. to 340 B.C., and the New Comedy till 260 B.C. Middle Comedy found its materials in satirizing classes of people instead of individuals. New Comedy answers to the comedy of the present day. See DRAMA.

COMELY, a. *kŭm'lĭ* [AS. *cymlic*, comely; *cweman*, to please, to delight: Dut. *komelick*, fit, convenient: Gael. *cumadail*, shapely—from *cuma*, shape, form]: finely proportioned; handsome; graceful; suitable; fitting; decent—connected with COME, which see: AD. handsomely; gracefully. COME'LINESS, n. fitness; suitableness; beauty that excites respect.

COMENIUS, *ko-mā'nē-ŭs*, JOHN AMOS (properly KOMENSKY): educational reformer: 1592, Mar. 28—1671, Oct.

15; b., according to some, at Comna, near Brünn; according to others, at Niwnitz, Moravia. His parents belonged to the community of the Moravian Brethren. C. studied at Herborn, and then at Heidelberg, after which he travelled through Holland and England, and at last settled at Lissa, Poland, where he was chosen bishop of the Moravian Brethren. In 1631, he published his *Janua Linguarum Reserata*, which was translated into many European. and even into some oriental languages. In this work, he points out a method of learning languages new at that time, which may be called the intuitive or perceptive system, in which the pupils were taught by a series of lessons on subjects easily understood or appreciable by the senses, such at natural history, the sciences, different trades, and professions, etc. C. published about the same time the *Ratio Disciplinæ Ordinisque Ecclesiæ in Unitate Fratrum Bohemorum* (1632), republished with remarks by Buddæus (Halle, 1702), and his *Pansophiæ Prodromus* (1639). In 1641, C. was invited to England, to assist in reforming the system of public instruction; but as the breaking out of the civil war prevented the execution of this design, he went to Sweden, where Oxenstiern gave him a commission to draw up a plan for the organization of schools in Sweden, which he completed at Elbing, four years afterward. He next went to Hungary for a similar purpose. Here he composed his celebrated *Orbis Sensuatium Pictus*, or The Visible World (Nürn. 1658), the first picture-book for children, often reprinted and imitated. Finally he settled in Amsterdam, where he published several other works. He died at Naarden. In the latter years of his life, C. gave way to fanaticism, misinterpreted the Revelation of St. John to suit his fancies of the existing state of Europe, and expected the millennium in 1672. See Laurie's *Comenius, his Life and Work* (1881).

COMES, *kō′mēz:* ancient officer, with territorial jurisdiction: see EARL.

COMESTIBLE, a. *kŏm-ĕs′tĭ-bl* [F. *comestible*—from It. *commestĭbĭlĕ*—from L. *comestum*, to eat, to consume]: eatable: N. an article of solid food. COMESTIBLES, n. plu. *-tĭ-blz*, eatables.

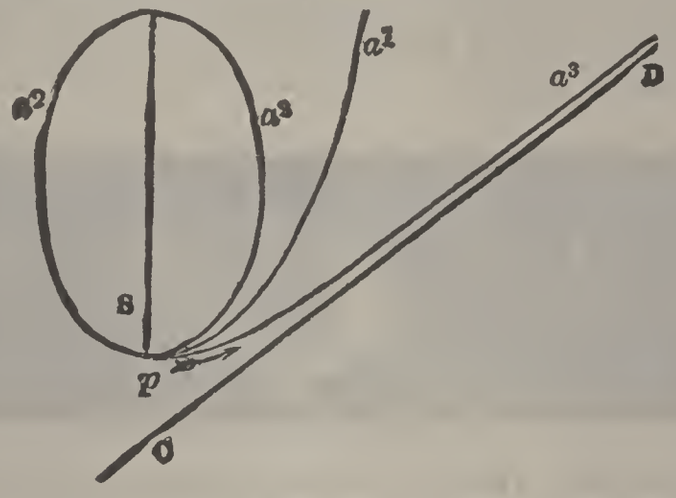
COMET, n. *kŏm′ĕt* [F. *comète*—from L. *comētēs*; Gr. *komētēs*—from Gr. *kōmē*, hair: It. *cometa*]: a hairy star; a celestial body accompanied with a train or tail of light, and revolving round the sun in an elliptic or parabolic orbit. COM′ETARY, a. *-ėr-ĭ*, relating to a comet. COMETA′RIUM, n. *-ā′rĭ-ŭm*, an instrument for explaining the revolutions of a comet. COMET-LIKE, a. COM′ETOG′RAPHY, n. *-ĕt-ŏg′rŭ-fĭ* [Gr. *grapho*, I describe]: a treatise about comets. COM′ETOL′OGY, n. *-ĕt-ol′ŏ-jĭ* [Gr. *logos*, a discourse]: a discourse about comets. COMET-FINDER, or COMET-SEEKER, telescope used in searching for comets; its field is wide, but its magnifying power is not very high. A comet has for its general features a definite point or

nucleus, a nebulous light surrounding the nucleus, and a luminous train preceding or following the nucleus. Anciently, when the train preceded the nucleus, as is the case when a C. has passed its perihelion, and recedes from the sun, it was called the beard, being termed the tail only when seen following the nucleus as the sun is approached. This distinction has disappeared from all modern astronomical works, and the name *tail* is given to the appendage, whatever its apparent position. Neither this luminous attendant, the tail, nor the nucleus, is now considered an essential cometary element, but all bodies are classed as comets which have a motion of their own, and describe orbits of an extremely elongated form. There are several plain points of difference between comets and planets. The planets move in the same direction, from w. to e., which is astronomically called 'direct motion;' but the movements of comets are often from e. to w., or retrograde. The orbits of all the planets are confined to a zone of no great breadth on either side of the ecliptic; but the paths of comets cut the ecliptic in every direction, some being even perpendicular to it. The orbits of all the planets are nearly circular; or, properly speaking, are ellipses of very small eccentricity. The orbits of comets, on the other hand, present every variety of eccentricity, some of them being ellipses or elongated closed orbits of various degrees of elongation; others, hyperbolas; while the majority have a form of orbit not differing sensibly from the parabola, which is the limiting form of curve to which both the ellipse and hyperbola approximate, under given conditions.

Let *p* be the point of perihelion passage of a C., and let the direction of its motion be indicated by the arrow. There is a certain velocity of motion at this point which would give the orbit the form of a parabola, pa^1, the direction of motion always approached to being parallel with the straight line through *p*S. Any velocity less than this would cause it to describe a closed curve pa^2a^2; any greater velocity would cause it to describe the hyperbola pa^3, in which case it would approximate to the direction of the straight line CD, and would never return. This would be the case if there were no disturbing force to interfere with the sun's attraction; and conversely, comets approaching the sun along the various paths above described, would pass the perihelion with the various velocities above indicated. Any attraction, however, of an extraneous body interfering with the attraction of the sun might change the orbit from the ellipse to the hyperbola, and *vice versa*, or from the parabola to either. As, however, there is only one parabola corresponding to infinite sets of ellipses and hyperbolas, an interfering cause is not likely to change the orbit from an ellipse or hyperbola to the parabolic form. Of about 400 comets whose orbits have been obtained with more or less accuracy, 85 appear to have described ellipses, 7 hyperbolas

and 300 orbits that cannot be distinguished from parabolas.

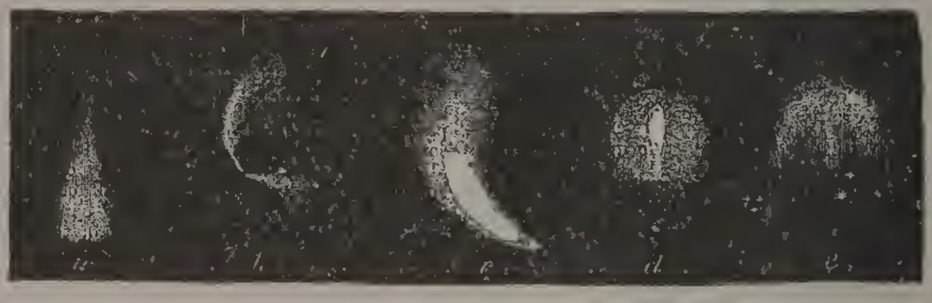
The discovery that comets are celestial bodies, extraneous to our atmosphere, is due to Tycho Brahé, who ascertained the fact by observations of the comet of 1577. Newton succeeded in demonstrating that they are guided in their movements by the same principle which controls the planets in their orbits; and Halley was the first, by determining the parabolic elements of a number of comets from the recorded observations, to identify the comet of 1682 with one which had been observed in 1607 and the observations recorded by Kepler and Longomontanus and also with a comet observed 1531 by Apian, at Ingoldstadt, and thus confidently to predict the return, at the end of 1758 or beginning of 1759, of a comet which would have the same parabolic elements. These parabolic elements are elements of a parabola nearly coincident with the elongated elliptic orbit of the comet. They are: 1. *The inclination;* 2. *The longitude of the node* (these two



determine the plane of the orbit); 3. The longitude of the *perihelion*, or point of nearest approach to the sun; 4. The perihelion distance, or nearness of approach to the sun; 5. The direction of motion, whether *direct* or *retrograde*.

To determine these parabolic elements, three observations of the comet are sufficient; and by a table of such elements deduced from the recorded observations it is possible at once to ascertain whether any newly observed comet is identical with any that have been previously observed. To predict, however, with accuracy the time of the return of a comet, a much more precise calculation must be made of the orbit, taking into account the perturbations of the planets to whose influence it is subject. This difficult problem was solved in the case of Halley's comet, by the joint work of Laland, Madame Lepante, and Clairaut, who announced, 1758, Nov., just as astronomers began to look out for the return of the comet, that it would take 618 days more to return to the perihelion than on the preceding revolution. The perihelion passage was fixed about the middle of April, 1759; but Clairaut dis-

tinctly forewarned the world that, being pressed for time, he had neglected small values, which collectively might amount to about a month in the 76 years. The comet passed the perihelion 1759, Mar. 12, exactly a month before the time announced, but within the assigned limits of divergence from that date. The elements of its orbit proclaimed it to be the comet of the former periods by their similarity. For the next perihelion passage the different calculations executed by MM. Damoiseau and De Pontécoulant, fixed 1835, Nov. 4, 7, and 13. Subsequently, observations indicated the 16th—that is to say, a deviation of only three days from what turned out the most accurate calculation, and a deviation of 12 days from the most remote. We have adverted to the perihelion passages of this comet in 1531, 1607, 1682, 1759, and 1835. It is now identified also with a comet observed 1456, and one in 1378, recorded by Chinese observations. There are no sufficiently reliable European observations previous to 1456; but it is conjectured by Arago that this comet is the same with the comet of 1305; that of 1230; a comet mentioned 1066 by Hali Ben Rodoan; that of 885; finally, a comet seen in the year 12 before Christ.



This account of Halley's comet has been given at length, to illustrate the principles on which the calculations are made. The annexed wood-cut represents some of the appearances which that comet presented, in different parts of its orbit, on its last visit in 1835—*a*, *b*, *c*, in approaching the sun; *d*, *e*, in retreating. There are 18 comets whose periodicity is established, and whose paths are known.

1. That of Encke, with a short period of 3.303 yrs. Its orbit does not extend so far as the orbit of Jupiter, and a slight acceleration in its periodic times of return has suggested the possibility of the space, within our solar system at least, being occupied by a resisting medium, though of extreme rarity.

2. That of Biela or Gambart, having a period of 6.692 years. During the visit of this comet, in 1846, it was seen to separate into two distinct comets, which kept moving side by side till they disappeared. On the return of the comet in the autumn of 1852, the distance between the two nuclei had much increased. Since then, although repeatedly due, it has not again been seen.

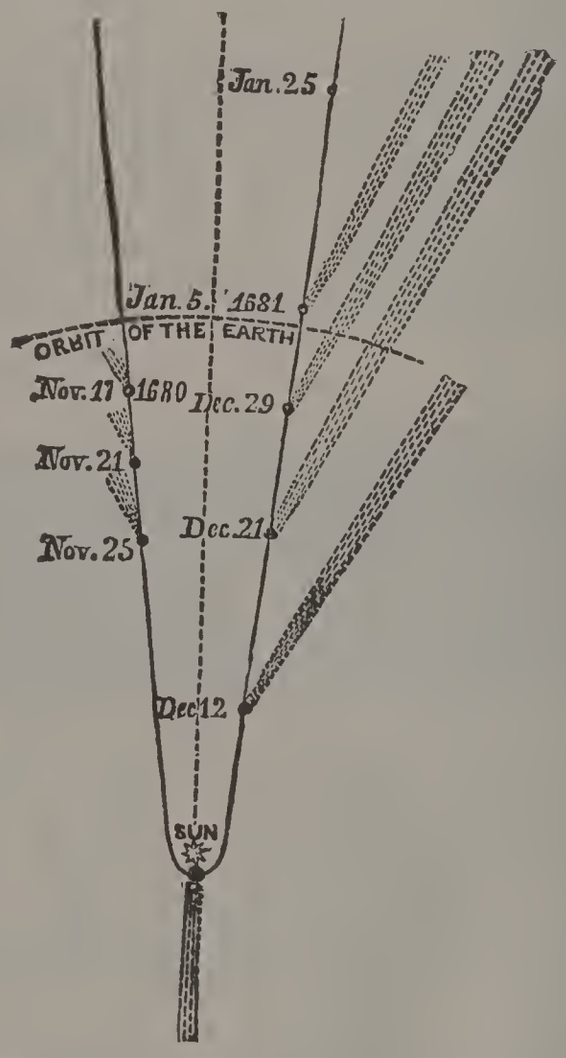
3. That of Faye, with a period of 7.566 years.

4	That	of	Temple I	5.281 years.
5	"	"	Brorsen	5.456 "
6	"	"	Temple-Swift	5.547 "
7	"	"	Winnecke	5.831 "
8	"	"	Finlay	6.556 "
9	"	"	D'Arrest	6.675 "
10	"	"	DeVico-Swift	6.400 "
11	"	"	Temple II	6.538 "
12	"	"	Wolf	6.845 "
13	"	"	Holmes	6.874 "
14	"	"	Brooks	7.097 "
15	"	"	Tuttle	13.667 "
16	"	"	Pons-Brooks	71.56 "
17	"	"	Olbers	72.65 "
18	"	"	Halley	76.08 "

In 1770, June, Messier discovered a comet which remained visible a long time, and enabled Lexell to ascertain the orbit to be an ellipse whose major axis was only three times the diameter of the earth's orbit, and corresponded to a periodic revolution of $5\frac{1}{2}$ years. This result suggested grave difficulties. It had been found impossible to identify this comet with any previously observed, and yet it was difficult to conceive that a bright comet, with so short a period of return, should have previously escaped observation. What was still more remarkable, it was never seen again, though anxiously looked for in the places where Lexell's orbit would have brought it. It became popularly called Lexell's lost comet, and gave occasion to many sarcasms by the wits of the day at the expense of astronomers, who had so much boasted of having found the key to the cometary movements. In the present day, the explanation is complete. The comet was never seen before 1770, because its orbit previously had been totally different, its nearest point to the sun having been as distant as the path of Jupiter. Its appearance that year arose out of the fact that in 1767 it was in such close contact with Jupiter, moving in the same direction, and nearly in the same plane, that the attraction of this planet entirely changed its orbit. But why has the comet not since been seen? Its passage to the point of perihelion in 1776 took place by day, and in 1779, before another return, it again encountered the vast body of Jupiter, and suffered a fresh orbital derangement, the attraction of the planet deflecting it into more distant regions, and so changing the form of the orbit, that if it had again been visible, it would not have been recognized as identical with Lexell's comet.

The celebrated comet of 1680, which furnished Newton with the occasion for proving that comets revolve round the sun in conic sections, and that, consequently, they are retained in their orbits by the same force as that which regulates the movements of the planets, appears to have been about the most remarkable for brilliancy of any of which there are authentic accounts. This comet is supposed to be identical with the one that appeared about the time of Cæsar's death (B.C. 44), with that which was

seen in the reign of Justinian A.D. 531, and with another in 1106 in the reign of Henry II.—the period of revolution, according to the orbit calculated for it by Whiston, being about 575 years. There is, however, some doubt among astronomers as to the real form of its orbit, the one assigned to it by Encke giving it a period of 8.813 years. This comet approached nearer to the sun than any known, except perhaps the comet of 1843, the calculation of whose perihelion distance, from the paucity of observations, has little certainty. The comet of 1680 approached the sun within the 163d of the semi-diameter of the earth's orbit.

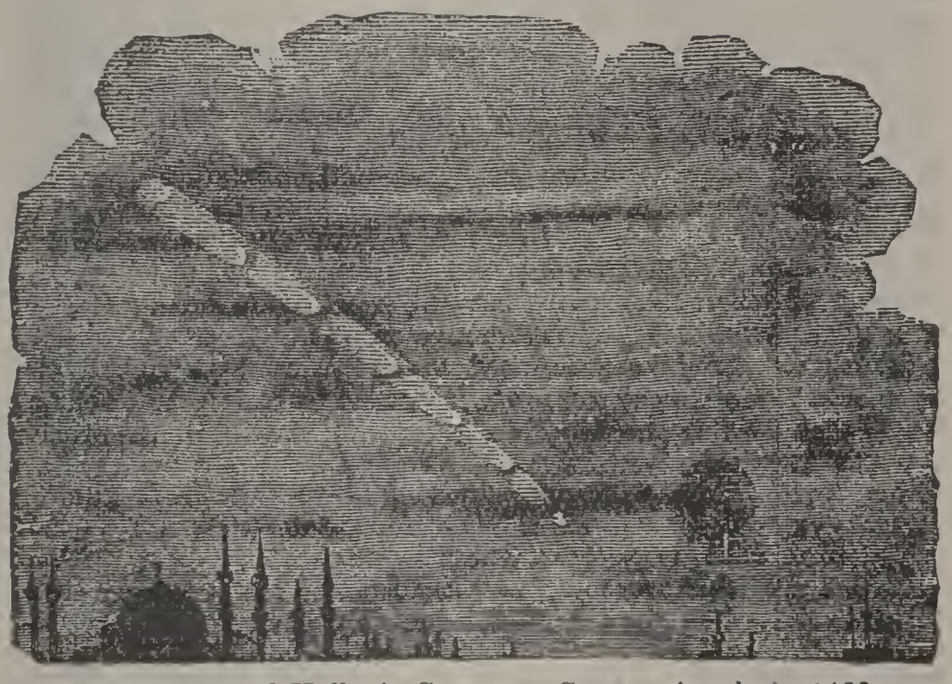


The annexed diagram shows a part of its path; the same diagram shows the direction of the tail. This is nearly always away from the sun, frequently assuming a curved form. It increases in length with its proximity to the sun, but does not acquire its greatest length till after passing the perihelion. These are usual characteristics of comets, which were exemplified by this one in a remarkble degree. These phenomena might be accounted for if we were to regard the train as vaporization produced by the intense heat to which the body of the comet is exposed in its approach to the sun.

In the present century, the most brilliant comets have been those of 1811, 1843, 1858 (Donati's), 1861, 1880, 1881, and the great comet (*b*) of 1882.

Spectroscopic investigation, so far as yet pursued, points to the conclusion that the nucleus is self-luminous, but that the tail shines with reflected light. It has been discovered recently, in determining the tracks of those streams of dark bodies that cause meteoric showers, that some of the tracks coincide with the orbits of well-known comets. From this, it is inferred that star-showers and comets may be only different manifestations of the same thing: see METEORS.

What the material of the comets consists of is subject only for speculation. The composition of the nebulosity and the tail is, at all events, something of almost inconceivable tenuity, as shown by three considerations: 1. Stars



Appearance of Halley's Comet at Constantinople in 1456.

seen through them suffer no diminution of brightness, though the light must have to traverse sometimes millions of miles of the cometary atmosphere. 2. Though the thickness of the tail of a comet may be millions of miles, and its length of course much greater, the comets have never been observed to cause any sensible disturbance of the planetary motions, though approaching near enough to be themselves so much affected as to change the entire character of the orbit. 3. The curvature of the tails, and the acceleration of the periodic time, in the case of Encke's comet, indicate their being affected by a resisting medium, which has never been observed to have the slightest influence on the planetary periods, though so long observed. Even the nuclei of comets appear to be of extremely small density. This may be inferred, though with less force than regards the tails, from the last two considerations above mentioned; moreover,

there are trustworthy accounts of stars of a very low order of magnitude being seen through the nuclei themselves.

Comets have been alternately regarded with terror and with welcome in the popular mind. The appearance of Halley's comet, 1456, just as the Turks had become masters of Constantinople, and threatened an advance into Europe, was regarded by Christendom with a superstitious dread, and to the Ave Maria was added the prayer: 'Lord, save us from the devil, the Turk, and the comet.' At Constantinople, the occurrence of a lunar eclipse at the same time, increased the portentousness of the event. The discoveries of science of the magnitude of the space filled by their bodies, and their prodigious velocity, together with the confessed impossibility of always predicting their approach, produced fears of another kind, which have sometimes been, especially in France, extravagantly exaggerated in the public mind. The groundlessness of such alarms, from the extreme improbability of collision of our earth with the nucleus, the probable innocuousness of a contact with the extremely attenuated surrounding matter, and, possibly, to the greater part of the world, of a collision with the nucleus itself, is sufficiently evident from what has been said above. It is probable that already, on many occasions, some of the attenuated vapor in the tail of comets must have come within the earth's attraction, and been absorbed in its atmosphere. Whether the effect is deleterious or salubrious, or whether it has any perceptible influence at all, is matter only of speculation. The salubrity of cometary influence is now a popular idea; and the vintages of 1811 and 1858 were favorable seasons, whose produce is often advertised as the comet wines. This, like many other speculations on comets, has no scientific basis.

COMFIT, n. *kŭm'fĭt* [F. *confit*—from L. *confectus*, prepared, manufactured—from *con*, *facĕrĕ*, to make]: a sweatmeat, generally restricted to a caraway, coriander-seed, or almond, and suchlike, coated with sugar.

COMFORT, n. *kŭm'fėrt* [F. *conforter*, to comfort, to strengthen—from mid. L. *confortārĕ*, to strengthen—from L. *con.* together; *fortis*, strong: Gael. *comh-fhur-tair*, a comforter]: ease or rest either to body or mind; support; he who or that which gives ease, support, etc.; consolation; moderate enjoyment with ease: V. to console; to strengthen; to encourage. COM'FORTING, imp. COM'FORTED, pp. COM'FORTER, n. *-ėr*, the person who, or thing which; the Holy Spirit; a warm wrap for the throat and chest. COM'FORT-ABLE, a. *-ă-bl*, being in a state of ease or moderate enjoyment; giving comfort; placing above want. COM'FORTABLY, ad. *-blĭ*. COM'FORTABLE'NESS, n. *-ă-bl'nĕs*, the state of enjoying comfort. COM'FORTLESS, a. *-lĕs*, without any thing to support or solace under misfortune or distress. COM'FORTLESSLY, ad. *-lĭ*. COM'FORTLESSNESS, n. the state of being without comfort.—SYN. of 'comfort, v.': to cheer; animated; encourage; enliven; exhilarate; console; solace; revive; invigorate; inspirit; gladden; recreate; refresh; strengthen, con-

firm,—of 'comfort, n.': pleasure; enjoyment; consolation; support; solace; countenance; encouragement;—of 'comfortless': desolate; forlorn; miserable; inconsolable; wretched.

COMFREY, n. *kŭm'frĭ* [a supposed corruption of mid. L. *confirma*, a strengthener]: a showy native plant, formerly esteemed as a strengthener and healer; the 'common comfrey' is *Sym'phytum offic'ĭnālĕ;* and the 'prickly comfrey' is the *S. asper'rĭmum*, ord. *Boragineæ*—both sometimes cultivated as forage plants.

COMFREY, *kŭm'frĭ* (*Symphytum*): genus of plants of the nat. ord *Boragineæ*, distinguished by a 5-cleft or 5-partite calyx, and a corolla enlarged upward, its throat closed by awl-shaped scales. The species, which are not numerous, are natives of Europe and the n. of Asia. They are perennial plants of coarse appearance, though occasionally seen in flower-borders. *S. officinale* (the Common Comfrey) and *S. tuberosum* are natives of Britain, frequent in shady and moist places. *S. officinale* was formerly much esteemed as a vulnerary, on account of its astringency. Its young leaves and its blanched shoots are occasionally used as boiled vegetables. The Prickly comfrey (*S. asperrimum*), a native of Siberia, 6–10 ft. in height, has been highly recommended for feeding cattle.

COMIC, a. *kŏm'ĭk*, or Com'ical, a. *-ĭ-kăl* [F. *comique*—from L. *comĭcus*, pertaining to comedy (see Comedy)]: relating to comedy; raising mirth; droll; diverting. Com'ically, ad. *-lĭ*, in a manner that raises mirth. Com'icalness, n. Com'ical'ity, n. *-kăl'ĭ-tĭ*, that which is comical or ludicrous.—Syn. of 'comical': droll; ridiculous; ludicrous laughable; diverting; sportive.

COMIC: that part of the æsthetic which is laughable, merry or amusing. The comic may be studied (1) in its effect upon the subject, that is, in the ideas and emotions which it stimulates, and (2) in the analysis and classification of the objects which excite laughter.

The state of feeling produced by the comic is, first interest and suspense, then sudden resolution of suspense accompanied by a pleasurable diffused glow, and commonly by smiling or laughing. This sudden pleasurable relief has been described as a feeling of superiority, but this is not quite consistent with the aesthetic quality of 'disinterestedness.'

Among the sources of comic effect incongruity or contrast is often mentioned. The appearance of a very large and a very small person side by side, or the taking inadequate means to some end, as to shake one's finger at a thunder-storm, are fair examples. Strangeness is a kind of incongruity, and many persons find new syllables, words or ideas amusing quite apart from any meaning they may have. Puns as a rule are merely incongruous and surprising. Incongruity is a rudimentary form of the comic —'addressed primarily to the muscular system'—and it must be novel and surprising in order to please. With the ancients, suffering on the part of enemies and inferiors

was a promoter of gaiety, and sprightly brutalities were great fun. There are survivals in Shakespeare and Molière. This form of amusement, however, is more vital, dramatic and significant than the preceding kind, since it does at least hinge upon human interests and activities. Then, too, the modern mind still enjoys the more refined sort of cruel and malicious wit. The most genuine source of the comic may be said to be the contrast of human types in the half-friendly struggle between different personalities. The bouts between Falstaff and the prince, between Sir Peter and Lady Teazle, or Alceste and Célimène are good comedy because, along with the incongruities and surprises, there is the background of personal interests. A really good comic situation like any great work of art is universal and permanent, and may be experienced again and again without being worn out. Meredith says: 'Comedy is a game played to throw reflections upon social life, and it deals with human nature in the drawing room of civilized men and women. . . She it is [Comedy] who proposes the correcting of pretentiousness, of inflation, of dullness, and of the vestiges of rawness and grossness yet to be found among us.' In the spirit of this view one would look to the Platonic Dialogues for the best of comedy—and would not be disappointed. The fun in mimicry is explained, at least in part, by this point of view; for it is commonly the imitation of some dignified person's mannerisms by one less dignified, i.e., a cheapening of the former's effect, which amuses.

Wit and humor are usually distinguished by assigning to wit a quick, brilliant, and sometimes cutting character, but to humor a genial, kindly, pervasive atmosphere. Wit is intellectual, humor not necessarily so. See: Meredith, *Essay on Comedy;* Hartmann, *Aesthetik* (historical).

COMINES, or COMYNES, *ko-mēn'*, PHILIPPE DE, Sieur d'Argenton: 1445–1509, Oct. 17; b. at the castle of Comines not far from Lille, France. After receiving a careful education, he passed into the court of Burgundy about 1466, and attached himself particularly to Charles the Bold (then Comte de Charolais). In 1472, Comines, who was anything but punctilious in his notions of honor, entered the service of Louis XI., the rival and enemy of Charles, who immediately covered him with honors, and made him one of his most confidential advisers. He proved himself a very suitable agent for carrying out the designs of the crafty monarch: but after the death of Louis, by his adherence to the party of the Duke of Orleans, Comines incurred the displeasure of the government of Anne of Beaujeu, and was sentenced to a forfeiture of a fourth of his estates and to ten years' banishment. This punishment, however, does not seem to have been carried out, for after a few years Comines was again employed in important diplomacy. Though engaged in the service of Charles VIII. and the Duke of Orleans, afterward Louis XIII., Comines failed to win the confidence of these masters. He died at his castle of Argenton. Comines's *Memoirs*

are admirably written, and afford abundant proof that he possessed a clear, acute, and vigorous mind. He seems to have looked keenly into the heart of every man who was associated with him in life, and with cool, severe anatomy dissects him for the benefit of posterity. The best edition of his *Memoirs* was edited by Mdlle. Dupont (3 vols., Par. 1840–47).

COMING, a. *kŭm'ĭng* [see COME]: future; expected: N. arrival; approach; act of sprouting.

COMITIA, n. plu. *kŏ-mĭsh'ĭ-ă* (L. *cum*, with or together; *ire*, to go]: the legal or constitutional meetings of the Roman people, convened by a magistrate, for the purpose of putting a question to the vote. This definition at least comprehends all the comitia, except the *C. Calata*, where the people were merely present as spectators. See ROME (Ethnology and History of Anc. Italy). COMITIAL, a. *kŏ-mĭsh'ĭ-ăl*, relating to the popular assemblies of Rome.

COMITY, n. *kŏm'ĭ-tĭ* [L. *comĭtas*, kindness, affability —from *comis*, friendly]: courtesy; civility. COMITY OF NATIONS—frequently mentioned by its Latin equivalent, *comitas gentium*—in *international law*, courtesy by which the laws and institutions of one country are recognized and given effect to by those of another. 'In the silence of any positive rule,' says Mr. Justice Story, 'affirming, or denying, or restraining the operation of foreign laws, courts of justice presume the tacit adoption of them by their own government, unless they are repugnant to its policy or prejudicial to its interests.' See Story's *Conflict of Laws*. See INTERNATIONAL LAW.

COMMA, n. *kŏm'mă* [Gr. *komma*, a part cut off—from *kopto*, I cut]: in written or printed compositions, the point (,) which is used to separate or point off phrases and imperfect clauses, and generally the simpler parts of a sentence, and which marks the shortest pause in reading; in *entom.*, a name given to a butterfly, *Grapta Comma album*, from the white mark, like a comma, on the under-side of the wing.

COM'MA, in the Mathematical Study of Sound: term applied to two small intervals, which, by comparison and calculation, arise as the difference between the proportions of certain other intervals of the diatonic scale. The larger, but less frequent, comma is called the *Comma ditonicum*, or the Pythagorean comma, being the difference between the true octave, whose ratio is 2: 1, and the interval which arises when the octave is obtained by tuning a progression of 12 perfect fifths, or arithmetically by adding their values together; by which process it is found that the last sound is greater than the true octave in the proportion of 531,441 to 524,288. The smaller comma, *comma syntonum*, or comma of Didymus, is—First, the difference between the large whole tone, the ratio of which is 9: 8, and the small whole tone 9: 10, which is found in the compound of these ratios produced by multiplying together respectively their antecedents, 9 and 9, and their consequents, 8 and 10, to be 81 : 80. Second, the difference

between the great limma, 27: 25, and the great half-tone, 15: 16, which is found by the same process, and then reducing the resulting ratio to its least terms to be also 81: 80. Third, the difference between the diesis, 128: 125, and the disachisma, 2048: 2025, which by the same process gives 81; 80; and lastly, the difference between the *small* limma, 135: 128, and the small half-tone, 24:25, which again gives the proportions 81: 80. The difference between the *Comma ditonicum* and the *Comma syntonum* is exactly the *schisma;* therefore, the aggregate of the diaschisma and schisma, if they be added together, is neither more nor less than the syntonic comma. This comma, again added to the diaschisma makes up the diesis, and added to the great half-tone, makes up the great limma. It follows therefore that, practically, two enharmonic tones in perfect tune never differ by a syntonic comma and it is wrong to say that *d* flat is higher than *c* sharp by a comma, while the real difference is that of a diesis, 128: 125. In the equal-tempered scale these varieties do not exist. The term *syntonic* comes from the Greek, and means equal-sounding.

COMMAND, n. *kŏm-mănd′*, or *-mând′* [F. *commander*, to command—from L. *commendārĕ*, to intrust to one's charge, in *mid. L.*, to order—from L. *con*, *mando*, I order]: the act of commanding; power or authority over; an order or message with authority; a naval or military force under the authority of a particular officer; power of overlooking a place; in *mil.*, the height of the top of a parapet above the ground or another work: V. to bid, order, or charge with authority; to govern or direct; to have power over; to hold the position of power; to have within the observation of the eye; to overlook. COMMAND′ING, imp.: ADJ. fitted to impress or influence; authoritative; overlooking. COMMAND′INGLY, ad. *-lĭ*. COMMAND′ED, pp. COMMANDANT, n. *kŏm′măn-dănt′* [F.]: the chief officer of certain military educational and training institutions; a title of certain commanding officers at certain stations; one in command of a fort. COLONEL COMMANDANT′, an officer of the highest grade in the Artillery, Engineers, and Marines. COMMAN′DABLE, a. *-dă-bl*, that may be commanded. COMMAN′DATOR′Y, a. *-dă-tėr′ĭ*, having the force of a command. COMMAN′DER, n. *-dėr*, one who; in the *U. S. navy*, officer next under a capt.; equivalent in rank to lieut.col., in the army. He serves either as second in command in a large ship, or in independent command of a smaller vessel. COMMAN′DRESS, n. a woman who commands. COMMAND′-MENT, n. a law; a precept; one of the precepts of the Decalogue. COMMAN′DERY, n. *-dėr-ĭ*, the body of knights, or the place of meeting, of any military order; e.g. the Freemasons who have reached the degree of Knight Templar; the estates and revenue of such order. COMMANDO, n. *kŏm-măn′dō* [Dut. a command]: in *s. Africa*, any force called out by public consent and border law. COMMANDER-IN-CHIEF, in *Great Britain*, the military officer who has the command and direction of the land forces, or of a portion of them on service out of the country;

a generalissimo. WORD OF COMMAND, the brief order of a military superior. TEN COMMANDMENTS, the summary of the duties to God and man in the Jewish and Christian religions given at Mount Sinai; the Decalogue, recorded Ex. xx.—SYN. of 'command, v.': to order; direct; bid; govern; charge; overlook;—of 'command, n.': order; injunction; precept; control; power; authority; mandate; charge; direction; behest;—of 'commanding': imperative; imperious; authoritative; overlooking.

COMMANDER-IN-CHIEF, in the British Army: the highest staff appointment. It is held by the general commanding all the forces in India, and would probably be given to the leader of any *large* army in the field. Formerly the army at home was administered by an officer of this rank; but since the death of the Duke of Wellington, 1852, the military administration has vested in an officer holding no higher commission than that of 'general on the staff;' who is called the general (or field-marshal, according to the holder's army rank) commanding in chief. Since 1855 this officer has been strictly subordinate to the secretary of state for war. Under the 'War Office Act' of 1870, and by orders in council of that year, the officer commanding in chief is one of the three great officers who administer the military affairs of the country under the secretary of state for war; his department being that of military command, discipline, and promotion. In practice, he makes all promotions and military appointments; though, in theory, these are made on the responsibility of the secretary of state. Appointments to very important positions on the staff would not be made without the supervision of the minister and probable concurrence of the cabinet. The officer commanding in chief is responsible for all recruiting operations, and for the appropriation of troops to particular localities; but he exercises rather a general inspectional control than any immediate command over the men. The actual command vests in the general officers commanding the districts into which the kingdom is parcelled. A British *naval* commander-in-chief is the chief admiral at any port or station.

In the United States the president is the commander-in-chief of all the land and naval forces. The land forces have been at different times under the immediate command of a special appointee, bearing the rank of 'general.' Governors of states are usually commanders-in-chief of the militia of their respective states.

COMMANDITE, *kŏm-mŏng-dēt*, SOCIÉTÉ EN, or PARTNERSHIP IN: expression used for at least two centuries in France, to express a partnership in which one may advance capital without taking charge of the business, or may become a 'sleeping partner.' The term owes its origin to the old meaning in the commercial nomenclature of France of the word command, which was applied to one person authorizing another to transact business for him. The working partner had a *commande* from him who

merely advanced capital. The term has acquired importance of late in political economy, because the law of France could exempt the sleeping partners from responsibility beyond the amount they might agree to be responsible for; while by the law of the United Kingdom, until the passing of the limited liability act, every partner of a company was liable for all its debts.

COMMANDMENTS OF THE CHURCH: rules established by the Rom. Cath. Church to be enforced by parents and others having legal authority upon all persons under their care. They depend on the authority of the church rather than in direct terms on the Scriptures. The English and French catechisms contain six such rules; others have five only. As now generally observed in the United States they are in brief: (1) to keep certain days holy, with the obligation of resting from servile work; (2) to hear mass on Sundays and holidays of obligation; (3) to keep the days of fasting and abstinence; (4) to confess once a year; (5) to communicate at Easter or thereabouts; (6) not to marry within forbidden degrees, or at forbidden times. The last commandment is omitted in many catechisms.

COMMEASURABLE, a. *kŏm-mĕzh′ûr-ă-bl* [L. *con*, and *measurable*]: having a common measure.

COMMELYNACEÆ, *kŏm-mĕ-lĭ-nā′sē-ē:* natural order of endogenous plants, consisting of herbaceous plants, with flat, narrow leaves, usually sheathing at the base. The calyx is 3-partite; the petals three, sometimes cohering at the base. The stamens are six, inserted under the ovary, which is 3-celled; the style is single. The fruit is a capsule, with 2—3 cells and 2—3 valves, bursting through the middle of the valves. The seeds are often in pairs, inserted by their whole side on the inner angle of the cell; the embryo lies in a cavity of the albumen. The order contains more than 260 known species, natives chiefly of warm climates; but a few occur in N. America. None are European. *Tradescantia Virginica*, or SPIDER-WORT, is a familiar example of the order. *Commelyna cœlestis* is an ornament of flower-gardens. The treatment is somewhat like that of the dahlia.

COMMEMORATE, v. *kŏm-mĕm′ŏ-rāt* [L. *commemŏrātus*, called to memory—from *con*, together; *memor*, mindful]: to call to remembrance by a special act; to do honor to the memory of an individual or some act of his; to celebrate with honor some past event. COMMEM′ORATING, imp. COMMEM′ORATED, pp. COMMEM′ORA′TION, n. *-rā′shŭn* [F.—L.]: the act of calling to remembrance by some special act or solemnity; the act of honoring the memory of a person or an event. COMMEM′ORATIVE, a. *-tĭv*, or COMMEM′ORATORY, a. *-ră-tėr-ĭ*, serving or tending to preserve the remembrance of. COMMEM′CRABLE, a. *-ră-bl*, worthy to be remembered.

COMMEMORATION, or ENCÆNIA, *ĕn-sē′nĭ-a:* great

festival of the Oxford academic year, usually on the third Wednesday after Trinity Sunday. It is of very ancient date, public exercises and recitations having been held from time immemorial in honor of the Act, or period when masters of arts an doctors complete their degrees. The proceedings consist of a Latin oration in honor of founders and benefactors; the presentation of the honorary degree of D.C.L. to strangers eminent in science, politics, etc.; and the recitation of the Newdigate or English prize poem, the Latin prize poem, and the Latin and English prize essays. Commemoration day is the culmination of a week of gayety and festivity. The more strictly academic and solemn portion of the public proceedings sometimes receives scanty attention from a great part of the audience; and the noisy humors of the gallery have often encroached on the stately periods of the public orator. In 1876 the under-graduates were removed from the special gallery that they had occupied, and distributed among the general audience of ladies and strangers as well as members of the university.

COMMENCE, v. *kŏm-mĕns'* [F. *commencer*, to commence—from It. *cominciare*, to begin—from mid. L. *cominĭtĭārĕ*—from L. *con*, *inĭtĭārĕ*, to begin]: to begin; to originate or enter upon; to begin to be; to perform the first act or part. COMMENC'ING, imp. COMMENCED', pp. *-mĕnst'*. COMMENCE'MENT, n. *-mĕnt*, beginning, rise, or origin; first existence; the annual day on which degrees are conferred by colleges and universities; a similar day at Oxford is called 'The Commemoration.'

COMMEND, v. *kŏm-mĕnd'* [L. *commendārĕ*, to commit to one's favor—from *con*, *mandārĕ*, to commit, to consign: It. *commendare:* F. *commender*]: to represent as worthy or suitable; to speak in favor of; to praise; to instruct or give in charge; in *OE.*, to recommend to remembrance; to send greetings or compliments. COMMENDS', n. plu. expressions of courtesy and respect. COMMEND'ING, imp. COMMEND'ED pp. COMMEN'DER, n. one who. COMMEN'DABLE, a. *-dă-bl*, worthy of praise or approbation; laudable. COMMEN'DABLY, ad. *-blĭ*, in a manner worthy of commendation. COMMEN'DABLENESS, n. *-bl-nĕs*, state of being commendable. COM'MENDA'TION, n. *-dā'shŭn*, approbation or praise; declaration of regard; eulogy. COMMEN'DATORY, a. *-tėr-ĭ*, serving to commend; containing praise.

COMMENDAM, n. *kŏm-mĕn'dăm* [mid. L. *in commendam dărĕ*, to give in charge for a time: L. *commendam*, that ought to be intrusted to—from *commendo*, I commit or intrust to]: a vacant church living intrusted to the charge of a qualified person till it can be supplied with an incumbent: the holding of a vacant benefice, or the intrusting of its revenues to another for a time. COM'MENDA'TOR, n. *-dā'tėr*, one who holds a benefice for a time: in Scotland, in Rom. Cath. times, a steward appointed to levy the fruits of a benefice during a vacancy—an appointment which was a cloak for a plurality of benefices in evasion of the canon of

the second council of Nice: see ABBOT. COMMEN'DATORY, a. *-dă-tėr-ĭ*, holding *in commendam*.—In the Church of England, when a clergyman is promoted to a bishopric, all his other preferments become void from the moment of consecration; but a method was devised by which the substantial interest in the living was retained by its being *commended* by the crown to the care of a bishop (called the commendatory) till a proper pastor should be provided. Such a living was called an *ecclesia commendata*, and is was said to be held *in commendam*. The holding on this title might be really temporary for one, two, or three years, or it might be perpetual. By 6 and 7 Will. IV. c. 77, s. 18, it is provided that no ecclesiastical dignity, office, or benefice shall be held in commendam by any bishop, unless he shall have held the same when the act passed.—Stephen, iii. 37.

COMMENSAL, n. *kŏm-mĕn'săl* [L. *com*, together; *mensa*, a table]: in *OE.*, one who eats at the same table; a guest or companion at table; a messmate; in *zool.*, applied to animals that live on or in other animals, sharing the food of their hosts, but not feeding upon them, thus not being truly parasitic. COMMEN'SALISM, n. *-săl-ĭzm*, the union of a non-parasitic kind between two animals, as that of an actinia when it fixes itself on the back of a crab. COMMENSALITY, n. *kŏm'mĕn-săl'ĭ-tĭ*, or COM'MENSA'TION, n. *-sā'shŭn*, in *OE.*, companionship at table.

COMMENSURATE, a. *kŏm-men'sū-rāt* [L. *commen'surātus*, measured in comparison with—from *con*, *mensūrā*, a measure]: equal; porportional; having equal measure or extent. COMMEN'SURATELY, ad. *-lĭ*. COMMEN'SURATENESS, n. COMMEN'SURABLE, a. *-sū-ră-bl* [F. *commensurable*—from L. *con*, *mensurābĭlis*, that may be measured]: having a common measure; reducible to a common measure. Two quantities or numbers are said to be commensurable which are of the same kind, and each of which contains a third quantity or number a certain number of times without remainder: see INCOMMENSURABLE MAGNITUDES. COMMEN'SURABLY, ad. *-blĭ*. COMMEN'SURABIL'ITY, n. *-ră-bĭl'ĭ-tĭ*, the capacity of being compared with another in measure, or of having a common measure. COMMEN'SURA'TION, n. *-sū rā'shŭn*, proportion in measure.

COMMENT, n. *kŏm'mĕnt* [F. *commenter*, to commend—from L. *commentārī*, to think of in all its bearings, akin to Skr. root, *man*, to think]: a note or remark intended to illustrate a writing, or explain a difficult passage in a literary work; that which explains or illustrates; explanation; observation: V. to write notes to explain and illustrate the meaning of an author; to expound or explain; to make remarks or observations. COM'MENTING, imp COM'MENTED, pp. COMMENTARY, n. *kŏm'mĕn-tėr-ĭ*, an explanation or illustration of a difficult or obscure passage; a book of comments or notes; a familiar historical narrative. COMMENTATE, v. *kŏm'mĕn-tāt*, to write comments or notes upon. COM'MENTA'TING, imp. COM'MENTA'TED, pp. COM-

MENTA'TOR, n. *-tā'tėr*, one who writes notes to explain a literary work; an expositor or annotator. COM'MENTATO'RIAL, a. *-tă-tō'rĭ-ăl*, having or exhibiting the character of a commentator. COM'MENTER, n. one who.

COMMENTITIOUS, a. *kŏm'mĕn-tĭsh'ŭs* [L. *commentit'ĭŭs*, invented, new]: in *OE.*, fictitious; imaginary.

COMMENTRY, *kŏm-mŏng-trē':* town of France, dept. of Allier, eight m. s.e. of Montluçon, on the Œuil. It stands in the centre of one of the most important coal-fields of France, and within the last 50 years has risen from a mere village to a busy and populous town. The people are mostly engaged in the coal-mines and iron-works. A railway connects it with Montluçon and other places, and with the Canal de Barry. In 1846, a fire consumed an enormous quantity of the coal in the mines. Pop. 10,000.

COMMERCE, n. *kŏm'mėrs* [L. *commercĭŭm*, trade, traffic —from *con*, *mercem*, goods, wares: It. *commercio:* F. *commerce*]: an interchange of productions and manufactures between nations or individuals; trade; traffic; intercourse; generally, international or foreign trade as distinguished from domestic; a certain game at cards: V. to hold intercourse with; to traffic. COMMERCIAL, a. *kŏm-mėr'shăl*, pertaining to commerce or trade. COMMER'CIALLY, ad. *-shăl-lĭ.*—SYN. of 'commerce, n.': trade; traffic; dealing, interchange; intercourse; communication. See EXPORTS AND IMPORTS.

COMMERCIAL FRUIT-GROWING: see FRUIT.

COMMER'CIAL LAW: see MERCANTILE LAW.

COMMERCIAL REGISTER: compilation of facts concerning the financial standing of persons and firms engaged in business, designed as a precaution against loss in commercial transactions. Large firms have their own systems of credit, by which they become familiar with the financial history of their customers and know whom to trust and for what period. In the United States the panic of 1837 shattered the credit system, and led to the establishment of a Mercantile Agency, which obtained the fullest information possible of the status of business men everywhere, and gave the information to all its subscribers. The first agency of the kind was established 1841 by Arthur Tappan, in New York; the firm subsequently became Tappan & Douglass, and, 1859, R. G. Dun & Co. John M. Bradstreet, a lawyer of Chicago, removed to New York, and established a second agency soon after Mr. Tappan opened the first, which is (1888) conducted by an incorporated company under the presidency of Charles F. Clark. The Bradstreet reports were first issued to subscribers in sheets of three of four pages, but those of both agencies are now supplied in large books, one every quarter. They are issued to subscribers only, with the understanding that none others shall have access to them. See BLACK LIST.

COMMINATION, n. *kŏm'mĭ-nā'shŭn* [F. *commination*—

from L. *comminatĭōnem*, a threatening—from *con*, *minor*, I threaten]: denunciation of punishment or vengeance; office in the Church of England containing a recital of God's threatenings, used only on Ash Wednesday. In the earliest ages, those guilty of grievous and notorious sins were put out of the church, until, on repentance, and after long trial, they were restored to full communion. It seems that, at least from the beginning of the 8th c., there was an office of such restoration for public penitents on the first day of Lent; but from various causes the penitential discipline became extinct, both in the Eastern and Western churches, and the office for Ash-Wednesday (so called from the penitents coming clad in sack-cloth and ashes) is the only memorial of it left. The office, as used in the Church of England, is nearly the same as those found in the Salisbury and York missals. The curses contained in Deut. xxvii. against impenitent sinners are read, and the congregation answer 'Amen' to every sentence, as acknowledging the justice of the sentences. See Bingham's *Antiquities*. COMMIN'ATORY, a. *-mĭn'ă-tėr-ĭ*, threatening.

COMMINGLE, v. *kŏm'mĭng'gl* [L. *con*, and *mingle*, which see]: to mix together into one mass.

COMMINUTE, v. *kŏm'mĭ-nūt* [L. *commĭnūtus*, separated into small parts—from *con*, *mĭnuō*, I lessen]: to make small or fine; to pulverize by pounding, etc.—not applied to liquids. COM'MINU'TING, imp. COM'MINU'TED, pp. made small; reduced in amount or extent. COM'MINU'TION, n. *-shŭn*, the act of reducing or lessening. COMMINUTED FRACTURE, in *surg.*, a fracture of the bone in which the bone is much broken, or in small pieces.

COMMISERATE, v. *kŏm-mĭz'ėr āt* [L. *commiserātus*, commiserated, pitied—from *con*, *miseror*, I pity: It. *commiserare*, to pity]: to look upon with pity and concern; to have compassion on; to sympathize with in distress; to be sorry for. COMMIS'ERATING, imp. COMMIS'ERATED, pp. COMMIS'ERA'TOR, n. *-tėr*, one who pities. COMMIS'ERA'TION, n. *-ā'shŭn* [F.—L.]: a feeling of pity for; compassion; sorrow for the distress of others. COMMIS'ERATIVE, a, *ā-tĭv*, piteous; compassionate. COMMIS'ERA'TIVELY, ad. *-lĭ*.—SYN. of 'commiserate': to pity; condole; compassionate; lament;—of 'commiseration': mercy; pity; compassion; sympathy; sorrow.

COMMISSARY, n. *kŏm'mĭs-sėr-ĭ* [F. *commissaire*, a commissioner—from mid. L. *commissārĭŭs*, one to whom anything is intrusted—from L. *con*, *missus*, sent]: one to whom is committed some duty or office; a delegate, nearly equivalent to commissioner; in *milit.*, an officer who has the charge of providing provisions, clothing, tents, transports, etc., for an army. COM'MISSARYSHIP, n. the office of. COM'MISSA'RIAT, n. *-sā'rĭ-ăt*, in *an army*, the department or office of a commissary; the organized system whereby armies are provided with food, and daily necessaries other than those connected with actual warfare. Among the ancients the Romans attended best to the commissary:

the *questors* were the commissaries. In feudal times, the soldiers were mainly dependent for food on their lords; but they lived very much by plunder. During the wars of the Crusades, the commissary was so utterly neglected that thousands in the armies died of starvation.

In England, the first germ of the modern commissary appeared in the office of *proviant-master*, in the time of Queen Elizabeth. Under Charles I., commissaries were stationed in the different counties. After various reorganizations, the Commissariat was merged, 1870, with other supply departments in the great 'Control Department;' and, 1875, the 'Commissariat and Transport Department' took the place of that board.

In the U. S. army this department is in charge of an officer with the rank of brig.gen., entitled the 'Commissary of Subsistence.' COM'MISSA'RIAL, a. pert. to a commissary. COMMISSARY-GENERAL, a chief officer of the commissariat department.

COM'MISSARY, in Ecclesiastical Law: officer appointed by a bishop to exercise jurisdiction in parts of the diocese so distant from the episcopal city that the people cannot be conveniently summoned to attend the principal court. For the history and jurisdiction of the commissary courts in Scotland, which, later, had similar duties, see Alexander on *Practice of the Commissary Courts in Scotland*, 1858.

COMMISSION, n. *kŏm-mĭsh'ŭn* [F. *commission*, a message, a commission—from L. *commissĭōnem*, the beginning of a play or contest, in *mid. L.*, a mandate, a charge: L. *commissum*, that which is intrusted—from *con*, *missus*, sent: It. *commissione*]: the act of doing or committing anything; the state of acting by authority for another; the fee allowed and paid to an agent for the sale of property or goods; one or more persons appointed to perform certain duties; a written warrant or letter patent (see PATENT), authorizing and ordering one or more persons to perform duties or exercise powers belonging to another, or to others. Instruments of delegation, bearing this title, are issued to officers in the army and navy, judges, justices of the peace, and others; another class of commissions are those granted to a body of persons, either to inquire into the condition of certain institutions or branches of the public service, or to exercise certain powers, or execute certain measures for their improvement. COMMISSION, v. to empower; to give authority to; to depute. COMMIS'SIONING, imp. COMMIS'SIONED, pp. *-ŭnd*. COMMIS'SIONER, n. *-ŭn-ẽr*, one who holds authority for the doing of something. COMMISSION MERCHANT OR AGENT, one who transacts business in buying and selling the goods of others, receiving for his remuneration a certain rate per cent.; a broker or factor, often called a consignee, as one to whom the goods are consigned. TO PUT A SHIP INTO COMMISSION, in *the navy*, to prepare a ship and put it into active service. TO PUT THE GREAT SEAL INTO COMMISSION, to place it in the hands of certain persons till the appointment of a new lord chancellor. *Note.*—Any important secular office is placed *in commission* by

intrusting certain persons with the discharge of its duties till a new appointment be made.—Syn. of 'commission, v.': to authorize; empower; accredit; appoint; depute; delegate;—of 'commission, n.': authority; mandate; charge; warrant; an order; office.

COMMISSION, Geneva (High Joint): see Geneva Arbitration.

COMMISSIONAIRE, n. *kŏm-mĭsh′ŭn-ār′* [F. *commissionnaire*, an errand-porter (see Commission)]: one of a class of men employed to convey messages, and perform a variety of commissions; an errand-porter; one of a class of attendants at hotels in European continental countries, who perform certain miscellaneous services. Employed to attend at the arrival of railway-trains and steamboats to secure customers, they wait to take charge of luggage, see it passed through the hands of the custom-house officers, and send it on to the hotel; for all which service they charge a fee. They likewise procure visés to passports, and act as valets-de-place, and may be hired by the day to conduct strangers to galleries of art and other public places of interest: see Courier.

COMMISSION DEL CRE′DERE: see Del Credere Commission.

COMMISSION OF ASSEMBLY: see General Assembly.

COMMISSIONS, Army: warrants for serving in certain military or naval offices. Those holding such authority are called *commissioned officers*. Non-commissioned officers form a step intermediate between commissioned officers and private soldiers. Before 1871, Nov. 1, commissions in the British cav. and inf. were partly obtained by purchase, under the system, now abolished, called the Purchase-System (q.v.): see also Promotion: Officers, Military and Naval.

COMMISSURE, a. *kŏm-mĭsh′ûr* [L. *commissūra*, a knot, a joint—from *con*, *missus*, sent: F. *commissure:* It. *commessura*]: a joint or seam; the place or point where two bodies or their parts meet and unite; in *anat.*, a bond or bridge connecting two structures, especially nerve-centres. Commissural, a. *kŏm-mĭsh′û-răl*, connecting together; applied to nerve-fibres which unite different ganglia.

COMMIT, v. *kŏm-mĭt′* [L. *committĕrĕ*, to bring together, to trust—from *con*, *mittĕrĕ*, to send: It. *commettere;* F. *commettre*, to commit]: to put into the hands or power of another; to intrust; to send for confinement; to deposit as in the memory; to do or effect; to perpetrate; to engage or pledge; to refer, as to a committee. Commit′ting, imp. Commit′ted, pp. Commit′tal, n. or Commit′ment, n. a sending to prison; an order for confinement in prison (see Imprisonment); the act of referring to or intrusting to; a doing or perpetration; the act of pledging or engaging. Committee, n. *kŏm-mĭt′tē*, a number of persons chosen to consider and manage any matter. Commit′teeship, n. Committee, n. *kŏm′mĭt-tē*, the person to whom the custody

of an idiot, or a lunatic, or his estate, is committed by the lord chancellor, who is called the *commit'tor*. COMMITTIBLE, a. *-tĭ-bl*, that may be committed. STANDING COMMITTEE, a committee that continues to the end of the session, and is appointed for definite purposes; a committee of a somewhat permanent character appointed by any society or association. TO COMMIT ONE'S SELF, to engage to do that which may not be recalled with honor or satisfaction. —SYN. of 'commit': to intrust; confide; consign; refer; deposit; do; perform; effect; perpetrate; compromise; expose; endanger.

COMMITTEE [Fr. *comité*]: number of persons, usually not less than three, selected from a more numerous body of members, to whom some special act to be performed, or investigation to be made, is *committed*. But though a committee usually consists of several members of the body by which it is appointed, it may consist of one member, or, what is more frequent, of the whole body of members acting in a different capacity from that which usually belongs to them. This latter form of Committee is known in legislative bodies as a Committee of the whole house. In order to mark the distinction between the house itself and the same body when thus resolved into Committee, the speaker in the English house of commons, and the chancellor in the house of lords, as soon as the Committee is formed, leave the chair, which is occupied by the chairman of Committee, a paid official, appointed at the commencement of every parliament. In the commons, moreover, the mace, which usually lies on the table, is put under it when the house goes into committee. Of committees of the whole house, the most familiar examples are committees of Supply (q.v.) and of Ways and Means (q.v.). The vote of a Committee is of no force till it has been, reported to and received by the house. In the case of every public bill, moreover, a Committee of the whole house is constituted after the second and before the third reading that the details of the measure may be more carefully adjusted. In private bills, analogous functions are performd by select committees. Occasional matters requiring special investigation also are remitted to select committees. In 1883, the house delegated part of its functions to *Grand* or *Standing* Committees—one for law affairs, the other for trade, shipping, and manufactures. Bills are in every case to be committed to them by order of the house. Each committee has from 60 to 80 members, nominated by the committee of selection; and the procedure is as in select committees.

The utility of a committee is strikingly seen in the transaction of business in the U. S. congress, where every bill after introduction is referred to an appropriate Committee, which considers it and recommends its adoption or rejection; many bills also originate in committee. In the senate and in the house there are about 100 standing committees. Nearly all of these are fixed, special ones being appointed as business may require, and sometimes both houses will appoint members of a joint committee on a

particular measure. As all bills providing for the raising and expenditure of money must by law originate in the house of representatives, its committees are invested with great responsibilities. The most important Committee, is the Committee on Ways and Means, which has charge of all matters pertaining to the revenue. A bill originating in this committee usually takes the name of its chairman. Next to this committee in importance is that on Appropriations. For the committees of congress, see CONGRESS, UNITED STATES.

COMMIX, v. *kŏm-mĭks'* [L. *commixtus*, mingled together —from *con*, *mixtus*, mixed]: to mingle or blend. COMMIX'-TURE, n. *-tūr* [L. *con*, *mixtūra*, a mixing, a mixture]: state of being mingled; union in one mass; incorporation. COMMIXTION, n. *kŏm-mĭkst'yŭn*, in *OE.*, a mixing or blending in one mass; incorporation; commixture.

COMMODE, n. *kom-mōd'* [F. *commode*, commodious—from L. *commŏdŭs*, suitable]: a small sideboard with drawers and shelves; a head-dress formerly worn by women; a convenient article of bedroom furniture.

COMMODIOUS, a *kŏm-mō'dĭ-ŭs* [mid. L. *commodĭōsus*, useful—from L. *commŏdŭs*, complete, suitable—from *con*, *modus*, a measure, a manner: It. *comodo:* F. *commode*]: entirely suited to the purpose for which made; convenient; suitable; useful. COMMO'DIOUSLY, ad. *-lĭ*. COMMO'DIOUSNESS, n. convenience; suitableness for its purpose. COMMODITY, n. *kom-mŏd'ĭ-tĭ*, anything that is useful; any object of commerce; anything that can be bought or sold, animals excepted; goods; wares; merchandise.—SYN. of 'commodious': convenient; suitable; handy; useful; fit; proper; comfortable;—of 'commodities': goods; merchandise; wares.

COMMODORE, n. *kŏm'mō-dōr'* [Sp. and Port. *comendador*, a knight commander, a prefect: F. *commandeur*, a governor or commander]: in the *navy*, a commander of a squadron or detachment of ships, in rank next below a rear-admiral and above a capt.: the senior captain of two or more ships of war cruising in company; the leading ship in a fleet of merchantmen. A commodore commanding more ships than one, hoists at that time a broad pennant A commodore is privileged to have a commander under him in his ship, in the same way as an admiral is privileged to have a captain. On the reorganization of the *personnel* of the U. S. navy in 1899 the grade of commodore on the active list was abolished. The list of rear-admirals was enlarged to 18, the first nine being officers then holding that rank; the second nine being commodores promoted to it.

COMMODITY EXCHANGES are in large measure conducted in a manner similar to the stock exchanges. There is a marked preponderance of purely speculative trading and prices of commodities are hence frequently raised or depressed fictitiously, beyond the range which the conditions or prospects warrant. Commodities being largely classifiable as necessaries of life, the evil effects of an un-

due inflation of prices, or of 'corners', are much more generally felt. Thus, a material, continued advance in the price of wheat might affect the price of bread. For this reason legislation has been more frequently directed against commodity exchanges where necessaries of life are dealt in. See EXCHANGES.

COM'MODUS, LUCIUS AURELIUS, Roman emperor: A.D. 161—192, Dec. 31; son of Marcus Aurelius Antoninus. When he was summoned to the throne on his father's decease, 180, Mar. 17, he manifested a shameful eagerness to plunge into the dissipations of Rome. At that period he was successfully fighting the Marcomanni and other tribes on the upper Danube, and, not to be balked of his anticipated pleasures, he hastily concluded a treaty with the barbarians, and reached the capital in the beginning of the autumn. The cruelty to which he was always prone, was especially called into action after a conspiracy by his sister Lucilla against his life had been discovered in 183. Nearly all who, by virtue, ability, and learning, had risen to honor during his father's lifetime, were sacrificed to appease his savage jealousy of the good and the great. Gross prodigality in the expenditure of the resources of the state on the amusements of the amphitheatre also marked his reign. He was proud of his own physical strength, and exhibited it in gladiatorial combats. For each of these exhibitions, he charged the state an enormous sum. He used also to sing, dance, play, act the buffoon, the pedler, or the horse-dealer, and engage in all the filthy and horrible orgies of Egyptian sacrifice. A glutton, a debauchee, who wallowed in the most sensual abominations, he yet demanded to be worshipped as a god, and assumed the title of Hercules Romanus. Many plots were devised against the life of this mingled monster and madman, and at last one of them accomplished its purpose. His mistress, Marcia, in concert with the prefect Laetus and the imperial chamberlain Eclectus, after they had failed in an attempt to poison him, caused him to be strangled by Narcissus, a famous athlete.

COMMON, a. *kŏm'mŏn* [F. *commun*, common—from L. *commūnis*, that which is common—from *con*, *mūnis*, the obligation of service or duty: It. *commune*] belonging equally to more than one; serving for the use of all; usual or ordinary; without rank; not distinguished by superior excellence; in *gram.*, applied to nouns that are both masc. and fem.: N. a tract of ground belonging to no one in particular, or open to the use of all. COM'MONLY, ad. *-lĭ*, usually. COM'MONNESS, n. the state of being common. In COMMON, in joint possession or use; participated in equally by certain others. COMMONABLE, a. *-ă bl*, held in common. COM'MONAGE, n. *-āj*, the right of pasturing on a common; the right of using anything in common with others. COM'MONALTY, n. *-ăl-tĭ*, the common people; all classes and conditions of people below the rank of nobility. COM'MONER, n. *-ér*, in England, one under the rank of

nobility; a member of the house of commons; a student of the second rank who pays board, in the University of Oxford; in *OE.*, a prostitute; a sharer in common. COM'MONS, n. plu. *-mŏnz*, in *Great Britain*, the lower house of parliament (see PARLIAMENT), whose members are elected by the people; the lower people; food provided at a common table; the dinner provided in English colleges and inns of courts for their members. In the inns of court, it is provided only during term. Separate tables are appointed for the benchers (q.v.), for the barristers, and for the students and other members of the inn. SHORT-COMMONS, insufficient fare; stinted diet. DOCTORS' COMMONS, in London, a college for the professors of the civil law having a great registry of wills. COM'MONTY, n. *mŏn-tĭ*, in *Scots law* land belonging to two or more persons, generally heath or moorland. COMMON-WEAL *-wēl* [L. *communis*, and *weal*] the public good; the body politic. COMMON-WEALTH, n. *-wĕlth*, a country in which a free and popular government exists; the whole body of the people in a country; in *Eng. hist.*, the form of government established under a council of state, including also the Protectorate under Oliver Cromwell—from the death of Charles I., 1649, to the restoration of Charles II, 1660 (see CROMWELL, OLIVER); a republic. COMMON-LAW, unwritten law binding by usage. COMMON-SENSE, exercise of the judgment in relation to common or every-day matters unaided by any art or system of rules; plain wisdom as the common heritage of man. OUT OF THE COMMON, unusual; not common. COMMON-COUNCIL, the governing body of a city or corporate town. COMMON-LOOKING, having a plain, ordinary appearance. COMMONPLACE, ordinary; neither new nor striking. COMMONPLACE-BOOK, a book in which things wished to be remembered are recorded and arranged under general heads for ready reference. COMMON MEASURE, in *arith.*, a number that will divide each of two or more numbers exactly, called also a COMMON DIVISOR. COMMON PRAYER, the liturgy of the Church of England. COMMON PLEAS, *-plēz*, one of the high courts of law held in Westminster Hall. COMMON-RECEPTACLE, the surface from which the inflorescence springs in composite or similar plants. COMMON RESERVOIR, a name applied to the earth, because being a good conductor of electricity, it draws it off from every electrified conductor that is not insulated, and tends, unless other causes operate with counteracting effect, to diffuse the electricity thus obtained through the whole extent of the globe—SYN. of 'common, a.': vulgar; ordinary; mean; public; usual; general; popular; universal; national; frequent; habitual; familiar; commonplace; stale customary; trite; threadbare;—of 'commonly': usually; generally; ordinarily; frequently;—of 'commonwealth'; state; republic; realm; the public.

COM'MON, in Law: in England, as defined by Blackstone, is 'a profit which a man hath *in the land of another*, as to feed his beasts, to catch fish, to dig turf, to cut wood.

or the like. In Scotland, such profit, or right to derive profit, is known as *Servitude* (q.v.), whereas a Common, or Commonty, as it is more frequently called, is a common right of property existing in several individuals, frequently the inhabitants of a whole village, in a piece of ground. In each individual, the right of course is limited, so as in reality to amount to little more than a servitude; but there is no over-lord, the land is not the land of another, but the land of the community as a body.

COMMON, TENANCY IN: estate (q.v.) or a right in property accruing to two or more persons; the nature of it is, that each has a distinct right to his own share, though no division has yet been made. They are accountable to each other for the profits of the estate; and if one turns the other out, an action of ejectment lies to restore the possession so taken.

But the common owners may agree to a partition, or one of them may, in equity, compel a partition. If the estate is one which passes by inheritance, the heir of each owner takes his share, and there is no benefit of survivorship. A tenancy in Common may be created either by a conveyance in express words, or by the parties obtaining their titles at different times, or at the same time from different parties. But if the title accrues by descent from the same ancestor, even though at different times, it is a tenancy in coparcenary (q.v.).

COMMON BENCH: see BENCH and COMMON LAW, COURTS OF.

COMMON CHORD: see CHORD.

COMMON COUNCIL: in the United States, the legislative part of the government of an incorporated city. The members, called aldermen or councilmen, are elected for specific terms in the wards or districts into which the city is divided, choose their own presiding officer, adopt their own rules for business, and provide for all necessary committees. They are independent of the mayor or other municipal officer, and in some cities are invested by law with certain magistratic powers, such as the right to perform the marriage ceremony, to hear and determine minor complaints, and to commit to prison for examination or trial. Usually in the absence of the mayor, the pres. and the common council, or the board of aldermen as called in some places, becomes the chief executive of the city. An indictment or complaint against, or a petition to, a city is addressed to the mayor and common council. As a rule, members of a common council serve gratuitously, though some cities pay them annual salaries or a perdiem. See ALDERMEN.

COMMON COUNTS, in Law: short formal statements of the cause of action made in a declaration (q.v.).

COMMON DEBTOR: see DEBTOR AND CREDITOR.

COMMON FORMS: ordinary clauses used in writs and deeds.

COMMON GOOD: see CORPORATION.

COMMON HOUSE, or COMMON ROOM: an apartment in a monastery in which a fire was constantly kept burning for the use of the monks, who frequently were allowed no fire anywhere else. The common house was presided over by a monk, called the master. It was the prototype of the common rooms in the colleges and halls of the English universities.

COMMON LAW, in England: properly the ancient consuetudinary law of England. Both the term and that for which it stands have, in all essentials, passed by inheritance to the United States, with only some changes in administrative forms. It is the law of custom, recognized principle, of ancient usage, rather than of statute or of equity strictly interpreted. It applies especially to such matters in the government or the security of persons and property as are not covered by positive enactment. The common law is therefore distinguished from the statute law, and from equity. It is wholly overruled unless the statute be declaratory by the statute law.

In England, 1875, Nov. 2, the common law courts were merged in the supreme court of judicature by the act of 1873 (see COMMON LAW, COURTS OF) with a view to incorporate equity also, when the two systems conflicted. Accordingly, the old relation between law and equity subsists, and the former maintains its force in spite of any discordant rules of equity, which can therefore now take effect through the intervention of a court by which the common law is in each particular case corrected or superseded. For an enunciation of cases in which this result is shown, see EQUITY.

The common law, is in one sense, an unwritten law. Its rules have been handed down by tradition, sometimes in complete and definite shape, such as the law of primogeniture, the jurisdiction of the courts, etc.; sometimes as a mere spirit or tendency, according to which, in novel cases, as they may arise, the law is to be expounded. Thus, the law-merchant is chiefly part of the common law, though only some of its rules are of real antiquity, and the greater portion of them were developed no later than the last century. Therefore, in such cases, the common law, though accounted traditional is expanded by the judges who declare it, who enounce new rules suited to new combinations of circumstances, and merely bearing an analogy to what the ancient common law, had established in cases which fell within its purview. It is therefore not wonderful that there should frequently be disputes as to what the common law is, and that different courts should occasionally give different decisions upon such questions.

As the common law has never been formally enacted, nor has yet been reduced to a regular code, it is to be sought for in the treatises of institutional writers, and in the decisions of the courts of law. These last are of the highest authority, and where they are consistent, they are taken

as irrevocably establishing the law. But being declaratory merely, and not imperative, a single judgment of a court is not held conclusive upon courts of equal jurisdiction, though it is commonly accepted as binding by inferior courts. A court may even depart from its own decision, if it shall come to be of opinion that the law has before been incorrectly stated. But this principle perhaps undergoes an exception in the British house of lords, which being the highest court of all, it is laid down by some of the law peers that its judgments have the force of statute, and that the rules that it has once sanctioned can be altered only by statute. This point has long been regarded as settled; and it is almost the only secure theory on which a court of supreme jurisdiction, like the house of lords, can continue to exercise its functions.

The common law is applicable to the whole realm, but it is part of its principles, that in particular circumstances it may recognize rules which are not of universal application; thus, in certain courts, it adopts as its own the provisions of codes which it entirely rejects in other courts. In Britain, the civil and canon law are in some of their rules recognized as part of the common law in the maritime and ecclesiastical courts, but they are of no authority otherwise in the courts by which the main branches of the common law are administered. So also, in particular localities, customs exist which the Common law sanctions, although they may be at variance with its general provisions. Such are the rules regarding succession which prevail in Kent, England, under the name of Gavelkind (q.v.), and in certain towns under the name of Borough English (q.v.). But customs of much more circumscribed operation are, when proved, equally accepted by the common law as part of itself within the limits in which it prevails; for the common law deems it not inconsistent to adopt a contrary rule to its own, if clear and uniform and confined to one locality. It has been held in England that in order to entitle a custom to the force of law, it must be of such endurance 'whereof the memory of man runneth not to the contrary.' The period thus indicated is more precisely defined as extending to the commencement of the reign of Richard I. But the doctrine does not obtain in the United States. By this doctrine is meant, however, not that the custom must be proved to have been in perpetual vigor since that remote epoch, but that proof of its non-existence within that period will invalidate it. If no such proof is adduced, the custom will be established by the evidence of experienced living witnesses, or by such documentary evidence as is inconsistent with any other assumption. Statutes in England have materially changed the doctrine, in regard to rights to land, and in other respects. In a number of the states, the common law of England, so far as the same is applicable and of a general nature, and all statutes of the British Parliament in aid of or to supply the defects of the common law made prior to the fourth year of James I., are by statute made the rule of decision, unless changed by constitutional or statutary enactment.

COMMON LAW COURTS.

COMMON LAW, Courts of: these are generally divided into superior and inferior. In England, the superior having jurisdiction over all England, and over common law rights of every description—sit at Westminster, and hence are often called the courts at Westminster. They had the name of the court of queen's bench, the court of common pleas or of common bench, and the court of exchequer. These all are offshoots of the great court, the *aula regia* (or *curia regis*) of the early Norman kings, which, under the presidency of the chief-justiciar, and composed of the great officers of state and of the household, of the principal nobility, and of the justices learned in the law, attended the king's person wherever he went, and formed the sole superior court of the kingdom. But the inconvenience attending so transitory a judicature led to the demand, conceded in Magna Charta, c. 12, that *communia placita*, common pleas, should be held in a fixed place; hence arose the establishment of the court of that name. Afterward, under Edward I., the office of chief-justiciar was abolished, and the judicial functions of the aula regia partitioned among the court of chancery and the three courts of common law above named. In 1873, the Judicature Act, 36 and 37 Vict. c. 66, was passed, which rearranged all the superior courts in England, consolidating them into one supreme court of judicature, but having five divisions called the high court of justice. Three of these divisions were called the queen's bench division, the common pleas division, and the exchequer division, respectively. The kind of business dealt with in each division was substantially the same as under the previous arrangements, the chief difference being the new names of the courts and the principle now common to them all, that thereafter they should administer justice without distinction as to its being theretofore known as common law or equity. In 1881, it was further resolved that the offices of chief-justice of common pleas and of chief-baron of exchequer should be abolished, and the three common law divisions consolidated. The common pleas and exchequer have accordingly disappeared from the list of divisions of the high court of justice; and queen's bench, presided over by the lord chief-justice of England, has now not four but fourteen puisne justices. The former distinctions existing in the jurisdiction of the courts may still be briefly indicated under the head of each court.

The inferior courts in England, anciently numerous, but now nearly all formally abolished, are now, excepting the modern county court (q.v.), matter of interest to the antiquary.

The *court baron* was a court composed of the tenants of each lord of a manor, presided over by the steward within the manor, subject to review by the court at Westminster. See Copyholds.

A few *borough courts* still exist, and are held under the presidency of the recorder (q.v.). From them a writ of error lies to the superior courts. The *lord mayor's court*,

and the *city court*, in the city of London, have considerable business. The *court of hustings* in London is practically obsolete. The *court of the Cinque Ports* was held before the mayor and jurats of each port, from which error lay to the lord warden of the Cinque Ports court at Shepway. and thence to the queen's bench.

The court of common pleas in Lancaster, and the court of pleas in Durham, have jurisdiction in all personal actions, and now form part of the high court of justice.

United States Courts.—The judicial system of the United States, like the government, is of two kinds. It consists of the Federal courts, provided for by the Federal Constitution, and created and deriving their powers from congress, and of the courts of the several states, created by the states, and provided with law by the legislatures of the several states. All of these courts follow the common law except where it has been repealed or statutory law provided in place of the common law. The judges of the Federal courts, including those of the Supreme Court of the United States, are appointed by the president with the consent of the senate. The judges of the Federal courts hold office during good behavior, their appointment being for life.

The inferior Federal courts are the circuit and the district courts. There are nine circuits in the United States, in each of which is a circuit judge. A justice of the supreme court occasionally sits with the circuit court judge. A district court judge may also sit on circuit. Sometimes the three sit together, but usually the circuit court judge sits alone. These Federal circuit courts exercise jurisdiction, concurrently with the state courts, where the subject-matter of the litigation exceeds $500 in value, and the United States is the plaintiff or is a party to the litigation, or where the suit is between citizens of different states. The circuit courts also have exclusive jurisdiction in cases of crime against the Federal government, except where otherwise provided. They have jurisdiction of cases for infringement of patents and copyright, and appeals lie to the Circuit courts from the district courts, where the amount involved in the litigation exceeds $50. The United States district courts—every state is a district and has at least one district court, some having two or more —are the bankruptcy and admiralty courts of the Federal government. They have jurisdiction in cases where an alien sues, and where the United States or an officer thereof or a foreign consul is a party. The district courts also have jurisdiction of such crimes as are not capital as the United States takes cognizance of. The United States district court judge presides over a district court.

The other Federal courts are the Court of Claims the courts of the District of Columbia, and the Territorial courts.

The Supreme Court of the District of Columbia has jurisdiction corresponding to that of the state courts and similar to that of the Federal district court. It consists of a

chief justice and five associate justices. The District of Columbia has a court of appeals consisting of a chief justice and two associate justices.

The court of claims consists of five judges, and has authority to hear and determine all claims against the United States, founded upon any law of congress or regulation of the executive department, or upon any contract, express or implied, entered into with or by the government. It can also be called upon to determine claims which may be referred to it by congress, also all set-offs, counterclaims, claims of damage or other demand whatsoever on the part of the government against any persons making claims against the government in that court.

A court of private land claims was established by an act of congress of 1891, Mar. 3, for the purpose of determining land claims under the laws of the United States, and land grants. It was provided that this court was to cease to exist 1903, June 30.

According to an act passed 1891, Mar. 3, the chief justice and associate justices of the supreme court were each assigned to a circuit; a supreme court justice, with the circuit court and district court judges to constitute, in each circuit, a circuit court of appeals.

The courts of the Territories of the United States, the judges of which are named by the president and confirmed by the senate, possess the powers especially conferred upon them by the act providing for their creation. These judges hold office subject to the will of the president. Such territorial courts have been created for Porto Rico, and all territories acquired by the United States as the result of the Spanish-American war.

The several states of the Union have a system of courts similar in many respects to the Federal courts and those of England. Each state has a court of last resort, which hears and determines all questions of law and equity on appeal from the trial court. The highest court in most of the states is named the supreme court, although in many of the states, like New York, for instance, the court of last resort is the court of appeals, the supreme courts in the state of New York being trial courts, similar in jurisdiction to the superior or circuit courts in many of the states. The judges of these state courts are elected for a term of years by popular vote, like other officers. The state courts have a separate criminal and civil jurisdiction, and the court of final appeal in each state settles all questions on appeal except where a violation of the Constitution of the United States is set up.

Each county in the separate states has its probate and other minor courts, and disposes of crimes and civil actions committed within the county. The counties and the towns in each county have justices of the peace and minor courts of limited jurisdiction, like those of the English system, which dispose of minor offenses and determine civil actions. The justices of the peace are usually committing magistrates, who issue warrants of arrest,

hold preliminary hearings, and commit offenders to await the action of the grand jury or the disposition of their cases by courts higher in criminal jurisdiction.

In the large cities and towns there are many police magistrates and justices of the peace to perform the same duties. In some towns and cities the magistrates and police justices are elected, and in others they are appointed by the mayor, as is the case in New York. There are also in each city minor courts which hear and determine civil actions.

Where a prisoner is held by a magistrate for trial, and is subsequently indicted, he or she is placed on trial on the indictment found, in a court of record of criminal jurisdiction, and, upon conviction, appeals in capital cases directly to the court of last resort. The decision of the court of last resort is final unless an infraction of the Constitution of the United States is alleged, and the case is then taken to the Supreme Court of the United States. In case the Supreme Court of the United States finds that a constitutional right has been violated, it orders a new trial of the prisoner. In the event of a decision adverse to the prisoner, the sentence imposed by the trial court is carried out.

A similar rule follows in cases of civil suit where the final appeal is taken to the Supreme Court of the United States. Such appeals from the state courts to the Supreme Court of the United States usually go up on a writ of error. There are, however, in many of the state courts intermediary courts of appeal, as, for instance, in the state of New York there is the appellate division, which disposes of many appeals, and from which an appeal cannot be taken unless a constitutional right has been violated, except upon the consent of the court. In the state of New York the trial courts in civil actions, exclusive of such minor legal business as is disposed of by the magistrates' and municipal courts, are the supreme court and the surrogates' courts.

The courts of special sessions determine cases of misdemeanor, and capital cases and other felonies are tried in the courts of general sessions. The first step in the criminal prosecution after the arrest of the prisoner is the arraignment before the magistrate or the justice of the peace, as the case may be. The prisoner is then either discharged or held, subject to the action of the grand jury, and his trial and various appeals follow as heretofore described.

As New York, second to London, is probably the home of more courts than any other place in the world, a brief *résumé* of the courts of that city may not be out of place here. The borough of Manhattan contains one of the largest judicial systems of the metropolis, and its system is carried out in the other boroughs of the city of New York.

Housed within the county court-house are the 13 trial terms and the 7 special terms of the supreme court of

the county of New York, and the two branches of the surrogates' court.

There are similar supreme courts throughout the other boroughs and the counties of the state of New York. The jurisdiction of the supreme court of the state of New York includes all the jurisdiction which belonged to the supreme court of the colony of New York and the Court of Chancery in England, on 1776, July 4, with the exceptions, limitations, and additions created by the constitution and laws of the state. In 1896 the court of common pleas, the superior court, and the criminal court of oyer and terminer were merged into it. Sessions are held for the hearing of motions and *ex parte* business in the county court house in the borough of Manhattan, New York, beginning on the first Monday of each month. Special terms for equity cases and enumerated business are held in the court house on the first Monday of each month excepting July, August, and September. Trial terms are held at the court house—except Part I., criminal term, which is held at the criminal courts building, beginning on the first Monday of each month, excepting July, August, and September, and on the third Monday of September. The appellate division meets on the fourth Monday of each month except August.

The surrogates' court consists of a trial and special term. This court has power to take proof of wills, to grant letters of administration, to direct and control estates and the settlement of accounts of executors and administrators, and to perform many other acts relating to probate business.

The criminal courts in the borough of Manhattan, New York, are Part I., trial term of the supreme court, and the courts of general sessions of the peace. The first-named court has jurisdiction to hear and determine all crimes and misdemeanors triable within the county, and to deliver the jails of the county, according to law, of all prisoners therein. It has power to try all indictments sent to it from the recorder's sessions, or which may be removed into it from that court, which in the opinion of the justice may be proper to be determined therein. It is held in the criminal courts building on the first Monday of January, February, March, April, May, June, October, November, and December.

Three branches of the courts of general sessions of the peace are held every month except July and August, when usually only one part is in session. These courts have a recorder, and also four judges known as judges of the court of general sessions. The latter are vested with the same power as a recorder, and, like him, are elected for 14 years at salaries of $12,000 a year each. This court has power to hear and determine, and punish according to law, all crimes and misdemeanors whatsoever, including crimes punishable by death and imprisonment for life, which are triable in the county of New York. Every conviction for a capital offense had in this court is review-

able as a matter of right upon a writ of error to the supreme court and the court of appeals, which courts may direct that a new trial be had.

The court of special sessions for the peace, as reorganized in the spring of 1895, occupies a position between the police and municipal courts and the courts of general sessions. Its jurisdiction extends to all misdemeanors. It is held by six justices appointed by the mayor, at salaries of $9,000 a year each, and the cases tried by it are sent to it by the various police courts. The accused, when brought before the police justice, may enter into a recognizance to appear for trial at special sessions. There is no jury trial in this court, and the accused, from the time of his appearance before the committing magistrate, has his election of trial here or in the court of general sessions. His election must be expressed in writing, and jury trial must be expressly waived if he elects to be tried by the court of special sessions. There are two divisions of the city for this court; the first comprises the boroughs of Manhattan and the Bronx, and the second the other three boroughs.

City Magistrate's Courts.—There are in New York 28 justices, called city magistrates, 14 for each of the two divisions of the city. They are appointed by the mayor at salaries of $7,000 a year each, except those of the boroughs of Queens and Richmond, who receive $5,000 a year. They hold the police courts of the city. In 1907, August, a night court was opened for relieving the regular courts of minor cases and also to enable innocent persons arrested at night to obtain freedom without being confined over night to await the action of the day court.

Appellate Division of the Supreme Court.—This court was established in 1896. Its jurisdiction covers appeals from the supreme court of the county of New York, and is final in all cases except those in which it certifies that questions are involved which should be passed on by the court of appeals. A subsidiary appellate court, known as the appellate term of the supreme court, sits to hear appeals from the city and district courts.

City Courts.—The city court was formerly known as the marine court. It has no jurisdiction in equity. Its jurisdiction embraces the following cases: An action for the recovery of a sum of money, only where judgment can be rendered for not more than $2,000, or for the recovery of a chattel not worth more than $2,000. The city court has also jurisdiction to enforce a mechanic's lien and to foreclose a chattel mortgage not exceeding $2,000 in value.

The United States Circuit Court, the United States District Court, and the United States Circuit Court of Appeals sit in New York.

Supreme Court of the United States. See SUPREME COURT OF THE UNITED STATES.

Children's Courts. See CHILDREN'S COURTS.

COMMON PRAYER, Book of: the forms of public worship and administration of the sacraments and other rites and ceremonies according to the use of the United Church of England and Ireland. With some changes of no great extent, it is authoritative also in the Prot. Episc. Church in the United States. It is, for the most part, a translation of such portions of the services of the ancient Catholic Church as were considered by the Reformers free from all objection. Before the Reformation, the liturgy was in Latin, and the form generally adopted in the south of England was that after the use of Sarum, which was based on the Anglo-Saxon and Norman liturgies, and set forth by Osmund, Bp. of Sarum, near Salisbury, 1087. The first steps toward its reformation were taken by Henry VIII., the main objects being the abolition of what was superstitious, and the translation of the services into the vulgar tongue. In 1540, a committee of bishops and divines was appointed for the purpose, and what was done by them was revised by convocation in 1543. In 1545, the *King's Primer* came forth, containing, among other things, the Lord's Prayer, Creed, Ten Commandments, 'Venite,' 'Te Deum,' Litany, and other hymns and collects in English, several of which were in the same version as at present used. It was, however, in the reign of Edward VI. that the most important steps were taken for framing a new service-book. In opposition to the practice introduced by the Rom. Cath. Church, an act of parliament was passed, ordering the communion to be administered to the laity in both kinds, and a formulary was drawn up for this purpose, and used at the end of the Latin mass. In the following year, a complete service-book was drawn up, including offices not only for Sundays and holidays, but for the administering of baptism and confirmation, for matrimony, the burial of the dead, and other occasions, together with the above-mentioned office for the communion considerably altered. This book was compiled by Cranmer and Ridley, assisted by eleven other divines; it was revised by convocation, and confirmed by king and parliament, and published 1549, and is known as the First Prayer-Book of Edward VI. It differed from the one now in use by beginning the daily service with the Lord's Prayer, by retaining prayers for the dead, and directing the use of the sign of the cross in confirmation and visitation services, and the anointing of the sick. It was drawn up with great prudence, retaining as much, and altering as little as possible of what had been familiar to the people. In 1550, the ordination service was added, taken principally from that used by the Rom. Cath. Church, but omitting certain ceremonies, and adding most of the questions proposed to the candidates. This service differed but little from that now in use, as authorized, 1662.

In 1551, objections, as might be expected, were made from various quarters to this *first* prayer-book, and Cranmer proposed to revise it, and called to his assistance two distinguished foreign reformers—Martin Bucer, and Peter Martyr. In this revision, some of the principal alterations

—in which is traceable the influence which Bucer and Martyr had brought from Geneva and Strasbourg—were the addition of the opening sentences, the exhortation, confession, and absolution at the beginning of the service, the disuse of oil in baptism, of unction of the sick, and of prayers for the dead. The book thus altered was confirmed by act of parliament 1552, and is called the SECOND PRAYER-BOOK of Edward VI.

In the reign of Queen Mary, the acts of 1549 and 1552 were repealed, and therefore, at the accession of Elizabeth, it was necessary to reverse this repeal; and this afforded a fresh opportunity of revising the whole. The question then arose (1560) as to which of King Edward's two books should be adopted. The queen herself would probably have preferred the first, as containing many of the old ceremonies to which she was attached, but the second was chosen, and a few unimportant changes introduced. This may be called the THIRD COMMON PRAYER-BOOK. No alteration was made by it as to the use of church ornaments and vestments, which were directed by the act of uniformity, 1559, to be retained as they were left by the authority of parliament in the second year of Edward VI.

On the accession of James I., after the Hampton Court Conference, the book was again revised; and a few judicious changes made, e.g., some forms of thanksgiving were added for special occasions, and the explanation of the sacraments by Dr. Overall after the catechism; midwives and laymen were also prohibited from baptizing. In this state, the C. P. was left until the Restoration, when, at the request of the Presbyterians, the king consented to a fresh revision, 1661. Twelve bishops were appointed to confer with an equal number of Presbyterian divines, each side having nine coadjutors. They were to consider the principal objections raised against the liturgy as it then stood. This was called the Savoy Conference. The Presbyterians brought forward all the objections that had been made by the Puritans for the last century, adding new ones of their own. Baxter went so far as to say that it was incapable of amendment, and was bold enough to offer an entirely new liturgy of his own composition to be received in the place of the authorized one. It is hardly necessary to add, that the conference broke up without anything being done, except that the bishops proposed a few alterations, which were adopted by convocation 1662, and confirmed by act of parliament. Among these changes, the new authorized version of the Scriptures was adopted, except in the Psalms (which follow the version of Coverdale's Bible, and had become familiar to the people), and in the commandments and the sentences at the communion service; the general thanksgiving was added, and the form of prayer to be used at sea. It is proper to observe that the four forms of prayer known as the *State* Services—viz., for Gunpowder Treason, Nov. 5; for King Charles's Martyrdom, Jan. 30, for the Restoration, May 29; and the King's Accession were never properly a part of the C. P., but were annexed to it by order of the king in council at the beginning of

every reign. Upon an address of both houses of parliament, in conformity with the wish of the clergy, an order in council was given by Queen Victoria for discontinuing the first three. There have been four acts of uniformity —viz., in 1584 and 1552, both of which were repealed by that of Elizabeth 1559; and the last in the 14th year of Charles II., 1662, which left that of Elizabeth unrepealed. In the Great Rebellion 1643, the Long Parliament prohibited the use of the common prayer-book. At the Revolution 1688, no change was introduced into the prayer-book; for although a commission was appointed for the purpose, the second downfall of Episcopacy in Scotland 1689, caused such alarm in the English Church that the matter was dropped.

In Ireland, 1551, the first prayer-book of Edward was introduced by the king's authority, after some opposition; and the same prayer-book continued to be used on both sides of the channel till the Irish branch of the United Church was disestablished. In 1875, the General Synod of the Church of Ireland adopted a revision of the common prayer, but without essential alteration. In Scotland, which had as yet not settled liturgy, Abp. Laud attempted to introduce the English prayer-book, but with alterations in the communion service which were likely to be very offensive to a people so hostile to the Church of Rome. This attempt was followed by riots, and ultimately led to the abolition of the Scotch Episcopate and to the Solemn League and Covenant. The English common prayer is now used in most of the Episcopal churches in Scotland, but in some a liturgy resembling that of Laud, but framed by the Nonjurors more on the model of the Eastern liturgies, is used in the communion service. In the United States, also, the English common prayer is used with some slight changes. Recently some modifications considerable in number, but amounting to no essential change, have been proposed by a committee duly appointed for that purpose in the Gen. Convention of the Prot. Episc. Church in the United States, and a portion of them have come into use. See Liturgy.

COMMON SCHOOLS: see Education.

COMMON SENSATION: a general term used to refer to the undifferentiated mass of conscious experience which is received from any part of the organism not supplied with specialized organs of sense. Thus, the abdominal organs are sources of such experiences. The term is sometimes used as a substitute for organic sensations. It is sometimes applied to relatively undifferentiated tactual qualities such as pressure and pain. See Sensation.

COMMON SENSE, The Philosophy of: a system of philosophy, based on an appeal to consciousness, or intuitive principles; set forth by Thomas Reid (q.v.) and other Scotch metaphysicians. It was intended as an antidote to the skeptical philosophy of Hume. There are certain beliefs that have been current among men in all ages,

which, when canvassed, by one set of philosophers, have been declared groundless illusions. Of these, the most remarkable instance is the belief in an external, material world, independent of any mind to perceive it. The doctrine put forth by Bishop Berkeley (see BERKELEY, GEORGE) as opposed to the common opinion was, that 'the whole universe subsists, and can only subsist, within such a sentient, invisible, and conscious thing as the mind is known to be. In this way, each human mind must have within it a separate universe of its own, but so exactly the same in all minds, that every object of sense, and every movement of every object that is to be found in the universe of one mind, is to be found also in the universe that is within the other mind; the general effect of all which conditions is much the same as that which would be produced if several people were all dreaming, exactly at the same time, exactly the same dream.' 'The result of Berkeley's inquiry,' says Dr. Reid, 'was a serious conviction that there is no such thing as a material world—nothing in nature but spirits and ideas; and that the belief of material substances, and of abstract ideas, are the chief causes of all our errors in philosophy, and of all infidelity and heresy in religion. His arguments are founded upon the principles which were formerly laid down by Des Cartes, Malebranche, and Locke, and which have been very generally received. And the opinion of the ablest judges seems to be, that they neither have been nor can be confuted; and that he hath proved, by unanswerable arguments, what no man in his senses can believe. Hume proceeds upon the same principles, but carries them to their full length; and as the bishop undid the whole material world, this author, upon the same grounds, undoes the world of spirits, and leaves nothing in nature but ideas and impressions, without any subject on which they may be impressed.'—*Inquiry into the Human Mind*, c. 1, s. 5.

That is, the doctrines of Berkeley and Hume were the correct conclusions from those of Locke, and the deadlock in philosophy that seemed to result, was to be solved, on the one hand, by the rejection of the presuppositions on which Locke's doctrine are based, especially the assumption that the mind receives all its information about the external world through sensation, and, on the other hand, through a new assumption, that of common sense. The latter asserts that certain principles of common sense, or self-evident truths, are primitive possessions of the mind; for we need only our insight to establish as factual this primitive content of human common sense. That is to say, the universally admitted impressions of mankind are to be taken as corresponding to the fact of things without any further scrutiny. Thus the philosophy of common sense, as promulgated by Reid, bore reference especially to the denial by Berkeley of the received view of the material world; and we have only the same view otherwise expressed, when it is declared by other philosophers that the deliverance of consciousness must be presumed true.

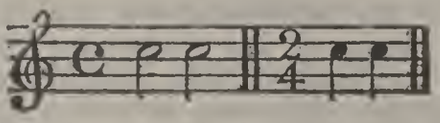
Sir W. Hamilton, in the most elaborate vindication of the common sense philosophy that has ever been produced (ed. of Reid's works), dwells largely upon this last view of the subject. The following extract is a specimen of his mode of reasoning: 'When, for example, consciousness assures us that, in perception, we are immediately cognizant of an external and extended *non-ego* (not-self); or that, in remembrance, through the imagination, of which we are immediately cognizant, we obtain a mediate knowledge of a real past: how shall we repel the doubt—in the former case, that what is given as the extended reality itself is not merely a representation of matter by mind; in the latter, that what is given as a mediate knowledge of the past, is not a mere present phantasm, containing an illusive reference to a real past. We can do this only in one way. The legitimacy of such gratuitous doubt necessarily supposes that the deliverance of consciousness *is not to be presumed true.* If, therefore, it can be shown, on the one hand, that the deliverances of consciousness must philosophically be accepted *until* their certain or probable falsehood has been positively evinced; and if, on the other hand, it cannot be shown that any attempt to discredit the veracity of consciousness has ever yet succeeded; it follows that, as philosophy now stands, the testimony of consciousness must be viewed as high above suspicion, and its declarations entitled to demand prompt and unconditional assent.

'In the first place, it cannot but be acknowledged that the veracity of consciousness must at least, in the first instance be conceded. Nature is not gratuitously to be assumed to work, not only in vain, but in counteraction of herself.' 'But in the second place, though the veracity of the primary convictions of consciousness must, in the outset, be admitted, it still remains competent to lead a proof that they are undeserving of credit. But how is this to be done? As the ultimate grounds of knowledge, these convictions cannot be redargued from any higher knowledge; and as original beliefs, they are paramount in certainty to every derivative assurance.' 'It will argue nothing against the trustworthiness of consciousness, that all or any of its deliverances are inexplicable—are incomprehensible. To make the comprehensibility of a datum of consciousness the criterion of its truth, would be indeed the climax of absurdity. (P. 745.)

The axioms of common sense are such as these: the laws of Identity, Contradiction, and Excluded Middle (see IDENTITY); the axioms of Mathematics; the law of Causality (see CAUSE); the doctrine of an innate moral sense (see ETHICS); the doctrine of man's Moral Liberty (see FREE WILL); the existence of an external world independent of every percipient mind. Such truths, are designated by a variety of other names, with a view to contrast them with what we learn in the course of our education and contact with the world; they are termed Intuitions. Intuitive Cognitions, Instincts, Feelings, Beliefs, Principles, Ultimate or Primordial Elements, Truths

a priori, Transcendental Cognitions, Truths of the Reason. See Hamilton's *Dissertations*, Note A.

COMMON TIME, in Music: that species of measure which contains two minims or two crotchets in a bar. It is marked thus:



Common-time is of two kinds, simple and compound. Simple common-time is that which includes four beats in a bar, or any division of that number, or square of the number of its divisions. The signs used to express simple common-time are the following: $\frac{2}{1}$, $\frac{2}{2}$, $\frac{2}{4}$, $\frac{4}{4}$, $\frac{4}{8}$, and the characters C and C. In these signs the upper figure denotes the quantity of notes required in the bar, and the lower figure the quality of the notes. Compound-time is expressed by the signs $\frac{6}{4}$, $\frac{6}{8}$, $\frac{12}{8}$, such signs meaning two or four beats of three crotchets or quavers to each beat.

COMMOTION, n. *kŏm-mō'shŭn* [F. *commotion*—from L. *commōtĭōnĕm*, violent motion—from *con*, *motus*, moved: It. *commovere*]: violent motion; agitation; disturbance; tumult of people; confused excitement; disorder of mind.—Syn. of 'commotion': disturbance; excitement; agitation; perturbation; violence; tumult; disorder; heat.

COMMUNE, n. *kŏm'mūn* [F. *commune*—from *commun*, common (see Common)]: in *France*, the name for a district of country; a parish. Communal, a. *kŏm-mu'năl*, pertaining to a commune.

COMMUNE, v. *kŏm-mūn'* [OF. *communier*, to communicate—from L. *commūnĭcārĕ*, to impart, to share together—from *commūnis*, common: It. *communicare;* F. *communiquer*, to communicate (see Common)]: to converse with familiarly and intimately; to talk with particularly; to confer; to have intercourse with one's self in meditation. Commu'ning, imp. Communed', pp. *-mūnd'*. Communion, n. *-mūn'yŭn* [F. *communion*—from L. *communĭōnem*, mutual participation]: familiar intercourse between two or more persons; intimate intercourse or union; concord; a body of Christians who have the same tenets of belief and forms of worship; the celebration of the Lord's Supper (q.v.), or the partaking of it.—Syn. of 'communion': fellowship; converse; intercourse; concord; agreement, unity.

COMMUNE, *kŏm'mūn:* administrative division of France within a department; the smallest territory having a chief magistrate and a deliberative assembly. In some places several towns or villages are embraced in one commune, in others there are several communes in one city. Where the population of a commune exceeds 3,000, the *maire*, or chief officer, is appointed by the general govt., in other cases the *maire* is appointed by the prefect of the department. The *maire* of a commune may be suspended by a prefect, but can be removed only by the general govt.; Members of the assembly are termed councilors, and are

elected by the people for a term of five years; their official actions are subject to revision and amendment by the prefect. A *maire* may appoint an *adjoint*, who, even though not a member of the *conseil municipal*, may preside over its sessions, and represent him as the agent of the prefect and the general govt. during his temporary absence. The rising of the Commune of Paris in 1871 should not be confounded with 'communism' (q.v.). It was a revolutionary assertion of the autonomy of Paris; that is, of the right of self-government through its commune or municipality. The theory of the rising was that every commune should have a real autonomy, the central government being merely a federation of communes. The movement was based on discontent at Paris, where the people found themselves in possession of arms after the siege of the Germans. The rising began on 1871, Mar. 18, and was only suppressed 10 weeks later after long and bloody fighting between the forces of the commune and a large army of the central government; 6,500 Communists having fallen during May 20-30, and 38,578 being taken prisoners.

COMMUNICATE, v. *kŏm-mū′nĭ-kāt* [L. *commūnĭcātŭs*, imparted, shared together (see COMMON and COMMUNE 2)]: to impart of our own knowledge to others; to give to another; to reveal; to give, as information, etc.; to partake of the Lord's Supper (q.v.); to have a passage or entrance from one place to another; to have intercourse by words, etc. COMMU′NICATING, imp. COMMU′NICATED, pp. COMMU′NICANT, n. *-nĭ-kănt*, one who partakes of the sacrament of the Lord's Supper. COMMUNICA′TIO IDIOMATUM, a theory concerning the person of Christ, that he in his own person has all the attributes of the divine and human natures jointly—the two natures being inseparable COMMU′NICA′TOR, n. *-tėr*, one who. COMMU′NICA′TION, n. *-kā′-shŭn*, the act of imparting or making known; intercourse by words, letters, or messages; correspondence; means of passing from one place to another. COMMŪ′NICA′TIVE, a. *-kā′tĭv*, disposed to impart or reveal; unreserved. COMMU′-NICA′TIVENESS, n. COMMU′NICA′TORY, a. *-kā′tėr-ĭ*, imparting knowledge. COMMU′NICABLE, a. *-kă-bl*, capable of being imparted from one to another. COMMU′NICABLY, ad. *-blĭ*. COMMU′NICABLENESS, n. COMMU′NICABIL′ITY, n. *-bĭl′ĭ-tĭ*.—SYN. of 'communicate': impart; confer; bestow; disclose; reveal;—of 'communication'; intercourse; commerce; correspondence; conference; dealing; connection; communion.

COMMUN′ION, in Ecclesiastical Language: that relation of fellowship, involving mutual claims and duties, in which those stand who are united by their Christian faith and confession in one religious body or church. To exclude from this relation and its involved rights is to *excommunicate*. The most visible symbol of this fellowship being the partaking together of the Lord's Supper, that rite is often called the Communion; see LORD'S SUPPER.

COMMUNION SERVICE: see COMMON PRAYER, BOOK OF: LITURGY: LORD'S SUPPER

COMMUNISM.

COMMUNISM, n. *kŏm'mū-nĭzm* [F. *commun*, common (see COMMON)]: a state of society in which no separate rights of property exist, all property and goods being held in common; an extreme type of socialism. COM'MUNIST, n. one who advocates that all things should be common property. COM'MUNISTIC, a. *-nĭs'tĭk*, pertaining to communism.

Though it is probably correct to say that communism is a radical form of socialism (q.v.), it should be carefully distinguished from the latter. Socialism proposes only the common ownership of the means of production—of capital—leaving private property in incomes and consumption goods; while communism, in the strict sense, aims at the total abolition of private property and the holding of all goods in common. In so far as socialism aims at the common ownership of goods, it is communistic; but the communism of most modern socialism is of that limited kind which has prevailed to a greater or less degree in all stages of civilization. Limited communism probably should not, in strictness, be called communism at all, as the principle of private property is recognized. As a state of society communism may be conceived to exist without government, in which it is called anarchistic communism (see ANARCHISM). While there have been many advocates of anarchistic communism it cannot be claimed that any good historical examples of it exist. Usually communism is combined with some form of governmental or social organization, in which case it may be called socialistic communism. All the examples of communistic societies and communities which will be cited are of this type. Finally, it must be noted that communism does not necessarily imply an equal division of goods. Various principles of division may be recognized, but in practice the principle of equal division usually obtains, because it is easiest to apply.

The historical origin of communism is lost in antiquity. In general, as we go back in civilization private property diminishes in importance. In the lowest stages of savagery the only private property which seems to be recognized is personal weapons and ornaments. Gradually the idea of private property develops with reference to other goods, until individual ownership supplants communal or tribal ownership in every sphere of possession. Private property in land was the last to be recognized, and in many instances lands were held in common by the members of a clan or village far down into historical times, as is evidenced by the Russian *mir*. In general, then, it is correct to say that communism characterizes the lower stages of savagery, and that private property, as the socialists claim, is essentially an historical development.

Instances of communism in historical times, however, are not to be interpreted as survivals of, or reversions to, the primitive communism of savagery. The origin of all such cases of communism is undoubtedly to be found

in an appreciation of the evils incident to the institution of private property—an appreciation which has characterized many of the world's greatest moral and religious teachers and social reformers in all ages. Lycurgus, according to Greek tradition, instituted the state of semi-communism which prevailed in ancient Sparta, and a similar state of society seems to have existed in ancient Crete. These two instances of communism are of interest to us, however, mainly because they inspired the famous communistic ideas of Plato's *Republic*. Plato regarded private property, together with the private family, as the source of the dissensions and evils of society. In sketching the picture of an ideal commonwealth, therefore, Plato provided that the citizen class should neither own property nor possess families of their own, but should have their goods in common, devote their whole time to the state, and have their children reared in a common nursery. It is true that Plato allowed private property and family life to the 'operatives'—the laboring classes—but these were hardly a part of the state, for while not slaves, they could not rise to citizenship. Thus Plato's communism was far from democratic in character; it was, indeed, wholly aristocratic, as the minutest details of life and conduct were to be regulated by the sages—the old men who were to act as magistrates of the community. Plato's sketch of an ideal communistic state was wholly speculative, and was recognized by Plato himself to be impractical. Together with other similar Greek schemes it exerted no perceptible influence upon the political and social life of the ancient world.

It was otherwise with the religious communism of the Orient. Communistic sects or societies, usually ascetic in character, have existed in the Orient from the earliest times. Such were the Essenes (q.v.) who flourished in Palestine in the first century of the Christian era. Communistic tendencies also manifested themselves among the early Christians, for we are told by Luke (Acts 4:32–35) that the members of the church at Jerusalem 'had all things common,' and that 'distributon was made unto each, according as any one had need.' This communism of the church at Jerusalem, however, seems to have been entirely voluntary, and simply a spontaneous expression of their religious enthusiasm. We have no record of communism being practised by any other early Christian church, and it seems to have died out early at Jerusalem. It cannot be claimed that communism is essentially implied in the teachings of Christianity.

After the dying out of communism in the primitive church, it survived in Christianity chiefly in connection with the monastic orders, such as the Franciscans and Brothers of the Common Life. It also manifested itself from time to time through the Middle Ages in various heretical sects, such as certain of the Catharists, and the Brothers and Sisters of the Free Spirit. It was not, however, until the beginning of the Reformation that

communistic sects became so numerous and powerful as to create serious political disturbances. During that period the Taborites, Anabaptists (q.v.) and several other communistic sects arose, and became prominent in the troubles of the time. The Anabaptists, in particular, attempted to propagate and carry out their communistic principles, but they were crushed out by persecution. All of these communistic movements within the church, however, were on a purely religious basis, and did not aim at economic results. They are to be sharply distinguished from much modern communism on this account; but modern communism is not wholly unrelated to them, as is shown by the fact that nearly all successful examples of modern communistic societies have retained a religious basis.

Communism of the modern economic type has had its immediate springs, perhaps, in the work of Utopists, of which Sir Thomas More was the first. More's *Utopia* (pub. 1516) described an ideal society in which community of goods was practised, citizens working but six hours a day and drawing their supplies as needed from common storehouses. The *Utopia* of More was but the first of a long line of similar imaginative works to which as a class it has given its name. Among some of more importance with communistic teachings are Campanella's *City of the Sun* (1623), Cabet's *Voyages to Icaria* (1842), and Edward Bellamy's *Looking Backward* (1888).

Somewhat different from these Utopian romancers, yet closely related to them, were the precursors of modern socialism, Saint Simon, Fourier and Robert Owen (q.v.). Saint Simon can scarcely be said to have taught communism himself, but many of his followers have made it a cardinal principle of their doctrine. Charles Fourier (1772–1837) presented a fantastic scheme of social reorganization which had many communistic features. Society was to be organized into associations or 'Phalanxes' of 2,000 persons each. Each phalanx was to live in a single building as one large family, and all were to share many things in common, but the surplus was to be distributed according to the amount of labor, capital and skill contributed. Thus private property was retained to some extent in Fourier's system, though this was only tentative. Many communities were founded upon Fourier's ideas in France but all failed.

Robert Owen, a successful English cotton manufacturer, began, about 1817, to advocate communism as a solution of the problem of poverty among the laboring classes. Owen had been led to this through social work for his own employees in his mills at New Lanark which had attracted the attention of many prominent humanitarians of the time. He thought that if cooperative villages of working people, each with about 1,200 inmates, could be formed with common kitchens and workshops, all enjoying the fruits of labor in common, the problem of poverty would be solved; for such colonies would prove so attrac-

tive that workingmen would desert the present industrial system. In 1819 some of Owen's followers started such a communistic colony at Motherwell, but it failed for lack of funds. In 1824 Owen came to America to disseminate his views, and his activity will presently be noted. Other colonies were started in England and Scotland, notably at Orbiston, near Glasgow, at Rahaline, and at Queenswood, but all failed after brief terms of existence.

COMMUNISM IN AMERICA: the opening up of the new and fertile lands of the North American continent, in the 19th century gave opportunity for experimentation upon communistic schemes such as had never been afforded before. Hence many of the most interesting practical attempts at communism have taken place on American soil; and the main centres of interest in the study of modern communism are in America. Only a few of the many communistic societies and communities which have flourished in the United States during the last century can be noted.

Among the earliest communistic societies organized in America were those of the Shakers (q.v.). Ann See, the founder of the Shakers, or Shaking Quakers as they were also called, landed at New York in 1774 with eight followers, driven from England by persecution. They settled at Watervliet, near Albany, N. Y., and in 1787 established community of goods and celibacy. Despite their celibacy the Shakers continued to increase in numbers until about 1830, when they had some seventeen communities in different states and some 5,000 members. The largest of their communities was at Mount Lebanon, N. Y. Since 1830 the number of Shakers has gradually diminished until now they are estimated to number only about 1,000. They have been very successful economically, but it is to be noted that their communism is essentially religious in character, and is but a part of a very strict, ascetic code of life.

The next interesting communistic experiment on American soil was that of the Harmonists (q.v.) who emigrated from Germany in 1803 under the leadership of George Rapp. They settled at Harmony, Pa., in 1805, and agreed to adopt a simple life and have all things in common. In 1807, during the progress of a revival, they also adopted celibacy. Although their settlement prospered in 1814 they moved to Indiana, where they founded the town of New Harmony. Becoming again dissatisfied they sold out in 1825 to Robert Owen, and moved back to Pennsylvania where they founded the town of Economy, about 20 miles north of Pittsburg. Here they accumulated considerable property, but their numbers gradually dwindled until now they are practically extinct. It must be noted again that the success of this communistic society rested upon its religious character; and that their communism, as in the case of the Shakers, was but a phase of their ascetic mode of life.

COMMUNISM IN AMERICA.

Next in order must be mentioned the attempts of Robert Owen to establish communistic colonies in America. As we have already seen he purchased the site of New Harmony in 1825, and attempted to establish a community there, but it lasted only two years. No less than twelve such colonies were started by Owen or his friends in America, all of which failed within a few years. In 1828 Owen went to Mexico, hoping to realize his ambitions there, but he was again disappointed.

In 1842 another German communistic sect, called the Inspirationists, came to America and settled near Buffalo, N. Y. In 1855–65 they removed to Iowa where they established the Amana Community, near Davenport. Here they still exist, numbering at the present time about 2,000 members. They have accumulated considerable property and continue to be economically prosperous. They believe in marriage, but otherwise practice a strict, if not ascetic, religious life; and to this must be attributed undoubtedly in large measure their success.

The efforts of Étienne Cabet, the French communist, whose Utopian romance, *A Voyage to Icaria*, we have already noted, to found a communistic colony in America, deserve mention. In 1847 Cabet acquired a tract of land in Texas, and in 1848 sixty-nine of his followers attempted to settle there, but the climate proved unendurable. They were met at New Orleans by Cabet, on their return, with 400 other followers, and all proceeded to Nauvoo, Ill., where they established a communistic community on a democratic basis with the idea that all should do as they pleased. Dissensions broke out in 1856, and Cabet himself was expelled and died of a broken heart. In 1860 the community broke up, but a remnant found their way to Iowa, where they established a new community which was for a time prosperous. In 1880, however, dissensions again arose, and the community split into factions, the Young and the Old party. The former broke up almost at once, and the latter dissolved in 1895.

A religious communistic sect of purely American origin were the Perfectionists who established the Oneida Community in 1848. They were founded by John Humphrey Noyes, a Congregational clergyman, who sought to reintroduce what he believed to be the communism of the early church. The sect was first started at Putney, Vt., in 1837, but on account of persecution moved to Oneida, N. Y., in 1847–48. Besides practising community of goods the sect was characterized by what was known as the system of 'complex marriages.' Unions between the sexes were not permanent, but were temporary, being based upon mutual consent, the community as a whole assuming responsibility for the children. It is said that license did not prevail under this system. Be that as it may, this form of family life aroused the opposition of the churches, and legal prosecutions compelled the Community to abandon its communism in 1879 and dissolve. It reorganized as a joint-stock company upon a business

basis with cooperative features, but without the communism of property and family-life. Upon this basis it still exists.

The last American communistic movement which deserves more than mere mention was the so-called Fourierite movement which spread over the country in the forties. It was introduced by Albert Brisbane, a disciple of Fourier, but was powerfully seconded by Horace Greeley, editor of the *New York Tribune*. Some thirty-four 'phalanxes' were started in different parts of the country. The longest lived of these was the North American Phalanx in Monmouth County, N, J., of which Greeley was vice-president, and which lasted from 1843 to 1856. The most famous, however, was the celebrated Brook Farm (q.v.), where Hawthorne, Alcott, George William Curtis, Charles A. Dana and other men of letters put communism to a practical test. It broke up in 1847, and the Fourierite movement in general died out early in the fifties.

Perhaps the Civil War checked the development of communism in America. At any rate there was little activity in starting new communistic settlements from 1850 to 1880. During the last quarter of a century a number of attempts have been made to start new communistic colonies, notably at Kaweah, California (1884,) Topolobampo, Mexico (1886), and Ruskin, Tenn. (1893). Also, noteworthy has been the attempt to colonize the communistic Russian Dukhobors (q.v.) in Canada. None of these new communistic settlements can be said to have been successful.

Indeed, it may be said in conclusion that none of the experiments in communism known to history have been successful in the largest sense. A few have been prosperous from the economic standpoint, held together and animated by a religious fervor sufficient to secure the subjection of the individual to the good of the community. But even of these it has been well said that they knew nothing of real progress. They show no progress in culture and intelligence beyond their original starting point. It cannot be claimed that the lack of success of communistic communities is due to mismanagement or to unfortunate circumstances connected with their origin. Nor can their failure be ascribed to certain practices—such as free love and celibacy—more or less accidentally associated with communism. The failure of communism as a form of human society must be sought in the nature of communism itself. The three chief probable reasons for its failure are these: (1) Communism runs counter tc the instinct of acquisitiveness in human nature, upon which the institution of private property rests. This instinct, though not powerful primitively, has now become one of the chief springs of action in civilized man, and must have been made strong by ages of natural selection (2) Communism fails to encourage individual variations, but reduces all individuals to a dead level. Modern sociology has sufficiently demonstrated that all progress

springs from the fostering of individual variations. (3) Last, but not least, communism, as Aristotle argued long ago, fails to develop altruism. In order to give one must possess, and in a communitic society where individual possession is not permitted, habits of generosity and self-sacrifice are not readily fostered; and thus communism defeats its own end.

While the sociological judgment of communism must be on the whole unfavorable, it may be said, nevertheless, that experiments in communism have performed a good service by demonstrating the greater cooperation which is possible in human communities, and the extent to which the sacrifice of the individual to the group may go, even in a life-time of continued service.

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COMMUNITY, *kŏm-mū'nĭ-tĭ* [L. *commūnis*, common, ordinary (see COMMON)]: a body of persons having common rights and privileges, or common interests—generally limited in its application to the inhabitants of a city, town, or district, or to a society or profession; the whole body of the people; the commonwealth; body politic.

COMMUTATION: the act of changing the direction of current flow or the point to which it flows by changing the path it traverses. In electrical machinery it refers to the reversal of the direction of current in armature conductors when they pass a certain position in their revolution, which position corresponds with the passage under a brush, of a section of a series of revolving contacts—called a commutator—which section is connected to the conductor in which current reversal takes place at that instant. See ELECTRICITY, PRINCIPLES OF and ELECTRICAL MACHINES.

COMMUTATION OF TITHES: see TITHES.

COMMUTATOR: an arrangement of contacts by the movement of which the path of currents may be changed or reversed. Most often applied to the group of contact strips, insulated from each other but firmly fastened together to form a smooth cylinder which is placed on the rotating shaft of a dynamo electric machine and serves, by means of its connections to the armature windings, to connect the various windings, successively to the outside circuit through the 'brushes' which bear against the cylindrical surface of the rotating commutator. See ELECTRICAL MACHINES, and ELECTRICITY, PRINCIPLES OF.

COMMUTE, v. *kŏm-mūt'* [L. *commūtārĕ*, to alter wholly —from *con*, together; *mūto*, I change: It. *commutare*]: to

put one thing in the place of another; to mitigate; to change a penalty or punishment to one less severe. COMMU'TING, imp. COMMU'TED, pp. COM'MUTA'TION, n. *-tā'shŭn*, the giving of one thing for another; the substitution of a less penalty or punishment for a greater. COMMU'TABLE a. *-mū'tă-bl*, that may be exchanged. COMMU'TABIL'ITY, n. *-bĭl'ĭ-tĭ*, the capability of being exchanged one for another. COMMU'TATIVE, a. *-tă-tĭv*, relating to exchange. COMMU'TATIVELY, ad. *-lĭ*. COMMUTATOR, n. *kom'mū-tā'tėr*, an instrument for breaking or changing the direction of a galvanic current. COMMUTUAL, a. *kŏm-mū'tū-ăl*, in *OE.*, mutual.

COMNENUS, *kŏm-nē'nus:* name of a family, originally Italian, of which many members occupied the throne of the Byzantine empire, 1057–1204, and that of Trebizond, 1204–1461: see BYZANTINE EMPIRE: TREBIZOND.—ANNA COMNENA (q.v.), who lived in the first half of the 12th c., is of both historic and literary celebrity.—DAVID C., last representative of the imperial race in Trebizond, was put to death at Adrianople, 1462, with all his family, by command of Mohammed II. The attempt which has been made to trace the descent of the Bonaparte family from a branch of the Comneni settled in Corsica lacks evidence.

COMO, *kō'mō:* province of Italy, in Lombardy; bounded n. by Switzerland, w. by Novaro, s. by Milan, e. by Bérgamo and Sondrio; 1,049 sq. m. The cap. is Como. It is in the most picturesque part of Italy, embraces the celebrated Lake C. and portions of Lakes Lugano and Maggiore, is extremely fertile, rich in deposits of iron, copper, and lead, and white marble, has a large number of manufactories, and is one of the great centres of the silk industry in Europe. Pop. (1880) 518,372; (1901) 580,214.

CO'MO: city of Lombardy, n. Italy, beautifully situated at the s.w. extremity of the Lake of C. It lies in a valley, surrounded by hills, clad with luxuriant gardens, olive-plantations, and orange-groves, with here and there an old ruin cropping out. The city is surrounded by old walls flanked with towers, the gateways by which the walls are pierced being fine specimens of middle-age military architecture. Among the principal buildings of C. are the cathedral, built of marble, and containing some interesting pictures and monuments; the town-hall, also of marble, dating from the beginning of the 13th c.; and the churches of San Fedele and St. Abondio. There are also many fine mansions of the nobility in C. and its suburbs. The port of C., on the lake, is formed of two piers, each terminating in a square pavilion from which magnificent views are obtained. The people are very industrious. The chief articles of manufacture are silk, cotton, woolens, yarn, and soap, the last article having a high reputation. By means of its port, C. carries on extensive trade in the produce of the district with Switzerland. C., in the time of Pliny the Younger, had attained to a high degree of prosperity as *Comum Novum*. With the fall of the Roman

empire, C. passed out of sight until 1107, when it began to war with Milan, and in the course of 20 years was utterly destroyed by its antagonist. It was rebuilt, 1155, by Frederick Barbarossa, and remained a republic for two centuries, when it fell into the hands of the Viscontis. Pop., including suburbs, (1881) 25,560; (1901) 38,902.

COMO, Lake of (Ital. *Lago di Como*, anc. *Larius Lacus*): sheet of water in Lombardy, n. Italy, at the foot of the Lepontine and Rhetian Alps, formed chiefly by the river Adda, which enters it at its n., and issues at its s.e. extremity. The total length of the lake from Como to Riva is about 35 m. About 15 m. from its n. extremity, the promonotory of Bellagio divides it into two branches, the longer between 18 and 20 m. long, the other about 12 m. long. The three arms of the lake sometimes receive different names—the upper part as far as Bellagio being called the Lake of Ballano; the longer branch, on which the town of Como is built, the Lake of Como; and the shorter, the Lake of Lecco. Lake Como, however, is the general designation. The greatest breadth of the lake is not more than 3 m., but through the greatest part of its length it is much less.

COMOCLADIA, n. *kŏm-o-klā′dĭ-a* [Gr. *komē*, hair; *klados*, a branch—so named because the branches are tufted at the top of the tree]: genus of plants, order *Anacardiaceæ*. *Comocladia integrifolia* is a handsome tree with an erect trunk, few branches, smooth pinnate leaves, numerous flowers, and deep red, shining, eatable fruit; the wood is hard, of a fine grain, and reddish. *C. dentata*, native of Cuba, emits a strong smell of dung if even slightly wounded.

COMODO, *kō-mō′dō:* island in the Eastern archipelago, 35 m. in length, by 16 in average breadth; between Flores on the e. and Sumbawa on the w., being separated from the latter by the Strait of Sapi. It is a penal settlement of the kingdom of Bima in Sumbawa. The exports are dried fish and good grinding-stones.

COMONFORT, Ygnacio, *ĭg-nâ′sē-o kō-mŏn-fōrt*, Mexican general: b. Pueblo 1812, March 12; d. 1863, Nov. 13. He became a captain of cavalry in 1832, in 1834 was made prefect and military governor of the district of Tlapa, and in 1842 he was elected member of the National Congress. This Congress was soon dissolved, and Comonfort resumed his functions in Tlapa, displaying great energy in repelling the aggressions of hostile Indians. Appointed 3d alcalde of the capital, and afterward prefect of western Mexico, he relinquished these positions to engage in the war with the United States; and on Santa Anna's dissolving the army and leaving the capital open for the Americans, Comonfort commenced organizing guerrillas, when he was summoned to the Congress of Queretaro, where a treaty of peace was concluded with the United States. He was now chosen senator by his native state, and served in this capacity until 1851. In 1852–3 he was the representative

in Congress of the newly created state of Guerrero, and acted as custom-house director of Acapulco and other places until Santa Anna's return to power, when he was dismissed from office. He now joined Alvarez, raised the standard of rebellion, proclaimed the plan of Ayutla, 1854, March 11, and compelled Santa Anna, who endeavored to seize that town, to retreat. At the end of the campaign in 1855, Santa Anna was finally compelled to abdicate. Alvarez assumed the supreme government, but shortly afterward delegated his authority to Comonfort, who became provisional president of Mexico, 1855, Dec. 11. He soon met, however, with the most strenuous opposition on the part of the clergy, the army, and the large body of the Conservative party. The junta of Zacapoastla declared itself on December 19 against the president, and a little later theseat of revolution was transferred to the city of Pueblo. Over 5,000 men assembled there in 1856, February. Comonfort marched against them, forced the rebels to surrender on March 20, promulgated on March 31 a decree ordering the confiscation of the property of the Church, followed on June 28 by another decree forbidding the clergy to hold landed estate. At the same time he sent a Mexican envoy to Rome to settle with the holy see the questions raised by these measures; but the Mexican clergy made all possible effort to prevent his reception, while at home they labored to undermine the government. Congress which was opened by the president, 1857, Feb. 5, assembled under very inauspicious circumstances. It proceeded, however, to draw up a new constitution, which vested the legislative power and the control over religious and military affairs exclusively in Congress. The president, finding it impossible to meet the difficulties which agitated the country under such restrictions, was eventually constrained, in October, 1857, to apply for extraordinary powers. These were granted by Congress on November 4, and he was proclaimed constitutional president on December 1. His position, however, became more and more critical. Opposed by the clergy and the army, he found himself isolated, and could only depend upon the brigade of Gen. Zuloaga, which was attached to him personally. By a pronunciamiento at Tacubava, December 17, this brigade, too, declared itself against the new constitution, but appointed Comonfort chief of a new government. By a new pronunciamiento, however, 1858, Jan. 11, they discarded him altogether and the insurrection which broke out on that day in the capital led to a fierce struggle of several days. Appointing Juarez, president of the supreme court, provisional president, Comonfort attempted to regain his authority by force of arms, but in vain. On January 21, the capital was in the hands of the rebels. The House of Representatives appointed Zuloaga provisional president, and Comonfort repaired to the United States, but returned in 1862 and was minister of war in the Juarez cabinet.

COMORIN, *kŏm'o-rin.* Cape, southerly extremity of

the peninsula of Hindustan; a sandy accretion to the termination of the Western Ghauts; having on the outside a few detached rocks as a natural breakwater. The headland itself is so low as not to be visible at the distance of more than 10 m. from the deck of a large ship; and, long before it can be itself distinguished, it is fixed in position, to the eye of the approaching mariner, by a conspicuous peak of the great chain behind it. Its lat. and long. are 8° 5′ n. and 77° 37′ e. Cape Comorin is in the protected principality of Travancore; and close to it there stands amid a clump of trees, a village of the same name, with a few fishermen's huts, some venerated temples, and a Dutch church.

COMORN, *kō-mōrn′*, properly KOMORN: county in Hungary, bounded n. by those of Presburg and Bars, w. by Raab, s. by Stuhlweissenburg, e. by Grau; 1,146 sq. m. The cap. is Comorn. It is bisected by the Danube river, and watered also by the Waag. Excepting at the junction of the Danube and Waag, it is fertile in the n., the s. being mountainous. Wine-making and sheep-raising are chief industries. Pop. estimated at 160,000.

CO′MORN, properly KO′MORN: town and fortress in Hungary, on the island of Schütt, at the junction of the Waag and the Danube, which is here crossed by a bridge of boats; about 50 m. w.n.w. of Pesth. This island is remarkable for fertility, as is, indeed, the whole surrounding district. The town, irregularly built, with narrow, gloomy streets, has seven churches, of which four are Rom. Cath., also a synagogue. The fortress was erected by Matthias Corvinus, 15th c., and was restored at great expense, 1805. Its works and entrenchments extend about seven miles along the banks of the rivers, and it requires for its defense at least 15,000 men and 400 pieces of artillery. It has the reputation of being impregnable, and justified it in the Hungarian war, for the Austrians besieged it in vain from 1848, Oct.–1849, Sep., and became masters of it at last only through a capitulation. It has indeed been called the strongest fortress in the world. Comorn has extensive manufactures of cannon and small-arms; also of woolen and leather, and active trade in corn, wine, honey, fish, and timber. Pop. about 13,000, almost exclusively Magyars.

COMORO ISLES, *kŏm′o-rō:* group of four islands in the Mozambique Channel, between Africa and Madagascar; lat. 11°–13° s., long. 43°–45° 30′ e. The islands, which are of volcanic origin, are called Angaziya or Great Comoro, Anjouan or Johanna, Mayotta, and Mohilla. They are mountainous, the highest peaks rising above 6,000 ft. The soil is fertile. The inhabitants are principally Mohammedans, but there is much fetichism. The manufactures are coarse cloths, jewelry, and fire-arms. Mayotta (q.v.), was ceded to France 1842, and the whole group was attached to Reunion 1896. The total exports (mostly sugar) have an annual value of $150,000—$250,000; im-

ports of $100,000—$150,000. Great Comoro, which has an active volcano, suffers from want of water. The people of Johanna find their principal employment in connection with ships calling for provisions. The trade of Comoro and Mohilla is of the same character, but these islands are not so much frequented by ships for the purpose of victualling. Total pop. of the isles, about 65,000.

COMOSE, a. *kō-mōs′* [L. *coma*, hair]: in *bot.*, furnished with hairs as the seeds of the willow; hairy.

COMPACT, *kŏm-păkt′* [F. *compacte*, compact—from L. *compactus*, pressed, well-set—from *con*, *pactus*, driven in, agreed upon: It. *compatto*]: united and pressed closely together; firm; close; solid; dense; not diffuse: V. to press closely together; to join firmly; to make close. COMPAC′TING, imp. COMPAC′TED, pp.: ADJ. made firm and solid by pressing. COM′PACT, n. an agreement. COMPAC′TION, n. *-păk′shŭn*, the act of making an agreement. COMPACT′LY, ad. *-lĭ*. COMPACT′NESS, n. close union of parts; firmness; density. COMPAC′TEDLY, ad. *-lĭ*. COMPAC′TEDNESS, n. firmness; density. COMPACTURE, n. *kŏm-păk′tūr*, a close union of parts; in *OE.*, manner in which anything is joined together; structure—SYN. of 'compact, a.': close firm dense; solid; sententious; pithy; brief.

COMPAGINATION, *kŏm-păj-ĭ-nā′shŭn* [L. *compaginatio*—from *compagino*, I join together; *compago*, a joining together]: a framing or joining together; frame-work.

COMPANABLE, a. *kŭm′pă-nă-bl* [see COMPANION]: in *OE.*, fitted for company; fond of company. COM′PANABLENESS, n. *nă-bl-nĕs*, the quality of being well fitted for company; also COMPANIABLE, a. *kŏm-păn′ĭ-ă-bl*.

COMPANION, n. *kŏm-păn′yŭn* [F. *compagnie*, company—from *compagne*, a companion, the fem. of the *OF. compaign*—from mid. L. *compānĭō*, a companion—from L. *con*, and *pānis*, bread: comp. Gael. *companach*, a companion]: one who lives and eats with another; one who goes with another habitually as a friend; an associate; a comrade. COMPAN′IONLESS, a. without a companion. COMPAN′IONSHIP, n. fellowship; company. COMPAN′IONABLE, a. *-ă-bl*, sociable; agreeable; having the capacity of being agreeable in company. COMPAN′IONABLY, ad. *-ă-blĭ*. COMPANY, n. *kŭm′pă-nĭ*, a number of companions; a large or small number of persons met together; a party of persons assembled for social intercourse; fellowship; a number of persons united for the purposes of trade, etc. (see JOINT-STOCK COMPANY: PARTNERSHIP: GUILDS: LIVERY); a firm; the crew of a ship, with the officers, and all persons engaged on board and paid for specific duties—therefore excluding troops and passengers, but including naval officers (see CREW); a division of soldiers in a regiment under a captain: V. to associate one's self with: to keep company with. TO BEAR COMPANY, to go with; to attend. TO KEEP COMPANY WITH, to associate with; to go with as an intimate friend frequently or habitually.—SYN. of 'com-

panion': associate; comrade; consort; partner; ally; coadjutor; mate; compeer; confederate; accomplice; colleague; —of 'company': assembly; band; troop; assemblage; society; circle; group; gang; crowd; crew; association; corporation; collection; meeting.

COMPANION, n. *kŏm-păn'yŭn* [from COMPANION 1]: the wooden covering, hood, or pent-house on the deck of a merchant ship forming the entrance to the cabin below. COMPANION-LADDER, the ladder or staircase leading from the 'companion' to the cabin below.

COMPANY: see under COMPANION 1.

COMPANY, in Military Organization: an aliquot part of a regiment or battalion. The companies in an infantry regiment are generally ten, or, if there are two battalions of infantry, each has this number of companies. The captains, lieutenants, and sub-lieutenants are all *company officers*. The capt. is the chief of a company and the lieut. and sub-lieut. or 2d lieut. are his subalterns or assistants. The company is further separated into two *subdivisions*, of two sections each. In round numbers, in time of war, and without reference to special instances, a full company may be considered to comprise about 100 men, a subdivision 50, and a section 25. Under the captain's superintendence the lieut. commands the first and second sections, the 2d lieut. the third and fourth, with a sergeant to each section. Each company has its own arm and accoutrement chests, and keeps its own books. Companies in a cavalry regiment are sometimes called *troops;* in the artillery they are sometimes called batteries. In the Brit. army the company is nearly the same as above; in the German army, a company comprises about 250 men, under a capt. who is a mounted officer, and 3 subalterns.

COMPARATEUR, *kŏm-păr'a-tôr* [F.]: Prussian instrument for accurately ascertaining the length of measures after Bessel's mode. The micrometers are placed on a strong mahogany beam; and the slide, which carries the two measures to be compared, is so arranged that it moves them exactly behind one another in the micrometer line, and there retains them.

COMPARE, v. *kŏm-pär'* [F. *comparer*, to compare—from L. *compārārĕ*, to couple things together for judgment —from *con*, *par*, equal, like: It. *comparare*]: to set or bring things together in order to ascertain wherein they agree and wherein they differ—the objects to be compared may be thought of or be actually present; to liken; to refer to as similar for the purpose of illustration; to inflect an adjective that more or less of the quality may be expressed; in *OE.*, to vie: N. comparison. COMPA'RING, imp. COMPARED', pp. *-pärd'*. COMPA'RER, n. one who. COMPARABLE, a. *kŏm'păr-ă-bl* [F.—L.]: that may be compared. COM'PARABLY, ad. *-ă blĭ*. COMPARATIVE, a. *kŏm-păr'ă-tĭv* [L. *compăratīvus*, comparative]: not positive or absolute; estimated by comparison: having the

power of comparing; in *gram.*, an adjective inflected, expressing more or less: N. in *OE.*, one given to making comparisons, or who makes himself another's equal. COMPAR'ATIVELY, ad. *-lĭ*, in a manner as estimated by comparison; not positively. COMPAR'ISON, n *-ĭ-sŏn*, the act of comparing; the state of being compared; a consideration of the relations between persons or things in order to discover wherein they agree and wherein they differ; a simile; the inflection of an adjective to express more or less, as 'good, better, best.' COMPARATES, n. *kŏm'pă-rāts*, in *logic*, the two things or objects capable of being compared. COMPARATIVE ANATOMY, the study of the structures of two or more living creatures as compared with each other, to bring to light their resemblances or differences: see ANATOMY.

COMPAR'ISON, in Grammar: that which, as applied to adjectives (q.v.) and to adverbs (q.v.), marks the *degree* in which the quality expressed by the adjective or adverb is attributed to the object or action as compared with other objects or actions. There are three degrees of comparison. The *positive* indicates the quality generally, without comparison; the *comparative*, a higher degree of the quality than is attributed to other things; and the *superlative*, the highest degree that is attributed to any of the things under consideration. There are two ways of expressing these degrees. 1. By an inflection or change on the word; as, *hard, harder, hardest*; *happy, happier, happiest*: this mode prevails almost exclusively in Greek and Latin. 2. By an additional word, as *more happy, most happy*: this may be called logical comparison; the other grammatical. In French, with the exception of a few irregular adjectives, all adjectives follow the logical method. In English, the logical method is preferred in every case where the grammatical would produce a word difficult or harsh in the pronunciation. This is generally the case in English where the simple adjective is of more than one syllable; but it is not always so. Thus, *eárnester, prúdenter*, would make harsh combinations; not so *políter, discréeter, háppier*. The difference is, that in *eárnester, prúdenter*, the accent being on the first syllable, two unaccented syllables of discordant character are thrown together; in *políter, discréeter*, the unaccented syllables are separated; and in *háppier* though they come together, they are of a kind to coalesce readily. Thus the laws of euphony—which mean, the ear, and organs of speech consulting their own convenience—determine this point as they do much else in language. In general, it is only adjectives of quality that admit of comparison; and even adjectives of quality cannot be compared when the quality does not admit of degrees; as a *circular* space, a *gold* ring, a *universal* wish.

COMPARATIVE PSYCHOLOGY. Comparative Psychology properly refers to that department of science

which attempts a comparison of the mental activities of widely different types of organisms, e.g., the experiences of animals, savage tribes, children and the normal and abnormal mentality of human adults. In practice the term has been restricted to animal psychology, a study of the mental activities of animals. Assuming the truth of the evolutionary hypothesis that the human mind is a highly developed form of the animal consciousness, psychologists have been interested in such study in the hope that the facts gained may throw some light upon the nature of the human mind. The study is also prosecuted by the zoologists who are interested not primarily in the human mind but in the evolution of all life activities.

Comparative psychology is a recently evolved department of science. Several marked stages in its development may be noted:—(1) The first attempt was made by gathering a large collection of stories of unusual and striking acts of animals. The facts so gained were made the basis of a theoretical description in which animals were endowed with nearly every attribute of human mentality. The nature story writers afford an illustration of this method. This is sometimes called the anecdotal method, and, as may be easily inferred, the facts gathered in this manner are not always reliable. (2) The nature and degree of animals' psychic powers were deduced from more or less theoretical considerations taken from the writer's philosophic attitude toward the universe. (3) The attempt was made to gather a wide series of demonstrable facts. This has been done in two ways:—(a) By naturalists who have observed the instincts, habits, and development of animals in their normal life activities. (b) By experimental psychologists, who have studied their behavior under artificial conditions which can be altered at will. As an example, a hungry monkey is placed before a box containing food which can be opened only by pulling a series of levers. The behavior of the animal is then noted in his successive trials until the method of opening the box is thoroughly learned. A wide range of animals have been studied in this manner; among mammals may be mentioned the elephant, dog, cat, rat, mouse, etc. Various birds have been studied such as the carrier pigeon, chicks, the English sparrow, etc. The frog, crayfish, several species of fishes, bees, wasps and ants have received much attention. Some of the most valuable results have been obtained from the study of several species of micro-organisms,—small animal forms which can be observed only under the microscope. Such a method gives facts of conduct that are reliable and which represent more nearly the usual activities of animals, a statement which cannot be made in regard to the anecdotal method. While the experimental method gives a wide range of reliable facts as to normal conduct, yet no universal agreement is always possible as to what these facts mean in terms of consciousness and

mental capabilities. Each human being is immediately aware of his own inner conscious life and can describe his experiences to other persons by means of language. A student of animal psychology, however, is compelled to guess or infer by analogy as to the exact nature of the mental activities which accompany any given line of conduct on the part of an animal. This is a drawback which the science can never overcome.

In spite of the difficulties and the late development of the science, substantial progress has been achieved. It has been demonstrated that most animals, from the lowest to the highest, possess to some degree the capability of learning, i.e., the power of modifying their conduct on the basis of the success or failure of their past actions. The amount and degree of this power of learning gradually increases as we ascend from the micro-organisms to the more highly developed animals like the dog and the monkey. The method of learning is that of 'trial and error'. The animal blunders around in a more or less aimless fashion until finally one movement out of the many *happens* to be successful. In successive repetitions of the performance fewer and fewer useless movements are made until all are eliminated. The successful act first hit upon by chance is retained. Animals thus probably do not learn by reasoning or thinking, i.e., by solving the problem in their heads, as is maintained by exhibitors of trained animals, by some nature story writers, and by those who use the anecdotal method. Stories of unusual and striking acts by animal pets and the tricks of trained animals do not necessarily prove a thinking intelligence, because these wonderful results may be not a result of reason, but of the trial and error method. Such isolated conduct is valueless as evidence without knowing all about the previous acts of the animal leading up to the act in question. It is possible, of course, that some degree of reasoning may be possessed by some animals, but its existence has certainly not been demonstrated. Neither do animals learn by consciously imitating other animals. Such a capability was once supposed to belong to animals to a high degree, but such assumptions have generally proved to be unfounded. Some slight indications of imitation have been occasionally noted by a few experimenters, but their interpretations of the observed facts are often questioned. Imitative learning may occur occasionally with the higher animals, but, if so, it is a rare accomplishment. There is no uniformity as to the sense avenues used in guiding conduct. For example, man relies to a great extent upon vision, while the white rat, although the possessor of a good pair of eyes, does not use them to any extent. Probably the lower animals tend to rely more and more upon the 'muscle sense,'—a sense activity not utilized to any great extent by man. Some work has been done in determining the range of sensitivity of each sense in various animals, but no general results have been attained.

Among the various problems yet to be solved may be mentioned the 'sense of position and location,' by which is meant the 'homing instinct' of carrier pigeons, dogs, bees, etc. Little is known of the phenomenon except that some animals seem to have the power of journeying to a given position in space in spite of unfamiliar surroundings.

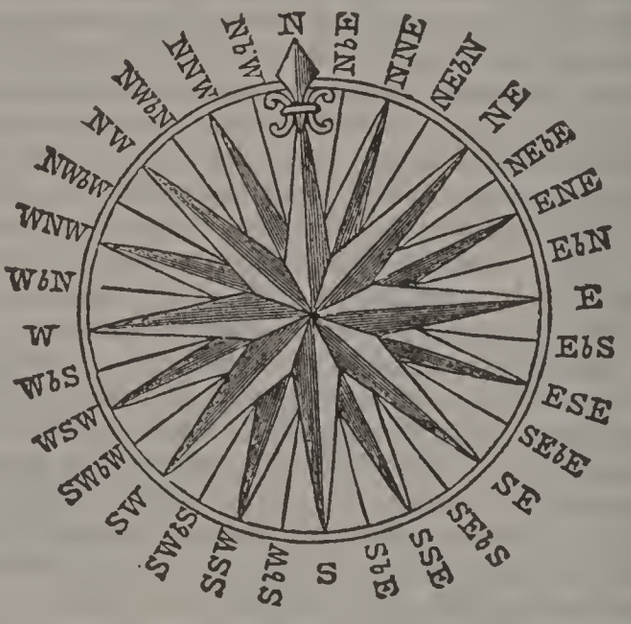
COMPARTMENT, n. *kŏm-pârt'mĕnt* [F. *compartiment* —from OF. *compartir*, to divide—from L. *compartīrĕ*, to divide into equal parts—from L. *con*, together; *partem*, a part or division]: a division or separate part of a general design; one of the divisions of a carriage, room, etc. COMPARTMENT-BULKHEADS, the same as water-tight bulkheads: see BULKHEADS.

COMPASS, n. *kŭm'păs* [F. *compas*, a compass, a round —from mid. L. *compassus*, a circle, a circuit—from L. *con*, *passus*, a step]: a round by walking; grasp; reach; space; extent; the limit or boundary of anything—applied to anything that can be measured or limited; a circuit; a circumference; the magnetic needle or mariner's compass; a guide; a direction: V. to go or walk round; to stretch round; to inclose; to encircle or surround; to grasp or embrace; to accomplish; to take measures preparatory to; to plot; to contrive; to besiege; in *OE.*, to obtain; to procure; to have in one's power. COM'PASSING, imp. COM'PASSED, pp. *-păst*. COM'PASSES, n. plu. *-ĕz*, an instrument with two legs for describing circles, etc. COM'PASSLESS, a. without a guide. COMPASS-BRICK, n. a brick with a curved surface, suitable for wells and other circular work. COM'PASS-PLANT, or Resin-Weed, a plant on the prairies of the far west, whose leaves are doubtfully reported to point n. and s.; it abounds in resin. COMPASS-ROOF, a bent rafter or curb-roof. COMPASS-TIMBER, timber naturally crooked, curved, or arched; used for ships' frames, to secure deck beams to the frames, etc. COMPASS-WINDOW, a circular, bay, or oriel window. TO COMPASS AN OBJECT, to go about it or to contrive it. TO FETCH A COMPASS, to depart from the right line; to advance indirectly.

COM'PASS, MARINER'S: instrument by which sailors are enabled to steer their course on the ocean out of sight of land, and when neither sun nor stars are visible. It is so called because its possible movement shows the whole circle of variations in direction between the points N., S., E., and W. The compass was undoubtedly known in China, and throughout the East generally, at a very remote period. The Chinese annals indeed assign its discovery to B.C. 2634. The earliest date at which we hear of their using it at sea is about A.D. 300. It was long contended that the compass as a nautical instrument, was invented by Flavio Gioja, native of Amalfi, about 1362; and that that part of the kingdom of Naples where he was born has a compass for its arms. For this there is no authority whatever, as the compass was well known as a nautical instrument before his time. It is probable, however, that Gioja may have made some

improvement in the instrument or in the mode of suspending it. See *British Annual for* 1837.

The essential part of the C. is the magnetized needle, balanced freely upon a fine point: such a needle has the property of arranging itself in the meridian, one end always pointing to the north, and the other to the south (see MAGNETISM); yet not exactly,. but with a deflection or *declination* (q.v.), which varies from time to time in magnitude, and may be toward the west or the east. The form of the needle is various, some needles being long, flat prisms, others lozenge-shaped. The centre of the needle is pierced, and a piece of agate generally inserted, with a conical hole sunk in it, to receive the fine point of the steel pin, so that the free motion may not be hindered by friction. The construction of the rest of the instrument depends upon its purpose. For a mariner's C., the needle is



fixed to a circular card, on which there is a star of 32 rays (see the figure), marking the 32 *points* of the heavens. The north point of the card is immediately over the north end of the needle, and the card moves with the needle. The cardinal points are marked with the letters N., S., E., W.; and the intermediate points, by an ingenious system of notation, the principle of which is readily seen by inspection of the figure. The points are often subdivided into quarters, which are thus marked: N.$\frac{1}{4}$E. (read, 'north one-fourth east'); N.$\frac{1}{2}$E.; N. by E.$\frac{3}{4}$E., etc. Space between two points of the C., being $\frac{1}{32}$ of the circle, is equal to 11° 15′. The C. thus formed is inclosed in a cylindrical brass box; and in order that the C. may remain horizontal in all positions of the ship, the box is suspended by gimbals (q.v.) The whole is then placed in the binnacle (q.v.), in sight of the helmsman. Inside the box, in the direction of the ship's bow, is a vertical black line called the *lubber-line*, and the steersman must keep the point of the card which marks the prescribed course always in contact with the black line. Compasses differing in some respects

from the mariner's C. are used in surveying and land-measuring; and they are often necessary in mining.

The great difficulty connected with the use of the mariner's C. arises from the disturbing influence of the magnetism of the ship. This difficulty pertains particularly to iron vessels, where the deviation of the needle is frequently so considerable as to render the compass almost useless. Various means of obviating this have been suggested; one of these is to place bars of soft iron or magnets in the immediate neighborhood of the binnacle, which, being so placed as to cause a contrary disturbance to that of the iron of the ship, leave the needle comparatively free. This is found to answer well in iron ships plying between N. American and British or other European continental ports; but where, as in the Australian passage, they change considerably their latitude, such an arrangement is worse than useless, as the magnetism of the vessel changing with the magnetic latitude, causes an ever-varying deviation of the needle. It has likewise been suggested to place a compass as a standard at the mast-head, where it would be comparatively free from the attraction of the vessel, by which the ship's course might be shaped, the ordinary C. being used merely to give immediate direction to the steersman. In the Brit. navy, this error is to a large extent obviated in the following way: A C. is placed so high above the deck as to clear the bulwarks, and allow the bearings of a distant object on shore or of a heavenly body to be taken while the ship's head makes a complete circuit. In this way, the deviation caused by the iron of the ship may be ascertained and registered for reference. The most perfect compass is that patented by Sir William Thomson, 1876.

COMPASS, Solar: instrument invented by William A. Burt (1792–1858), surveyor and judge in Michigan, to determine at any designated place a true line n. and s. from which other lines may be run in any direction. It has a latitude arc to be set at the latitude of the place of determination, a declination arc to be adjusted to the sun's declination at the time, and an hour arc to be set to the hour of the day. The needle-box has an arc of about 36°. The instrument is used by turning it so that the rays of the sun penetrate a lens and form a focus between cross-lines on a silver disk, the eye-sights being drawn to the true n. and s. lines. Local variations are indicated by the magnetic needle. This instrument has long been preferred to others in running important lines of survey, because local attraction has no appreciable effect upon it.

COMPASSES: instruments for transferring and marking off distances, or for drawing circles, ellipses, etc. The *common C.* or *dividers* are simply two rods or 'legs' joined together at one end by a pivot-joint, and pointed at the other; when used for drawing circles, the lower part of one of the legs is replaced by a pen or pencil. *Spring dividers* are much in use by workmen; in these, the legs are united by a strong steel spring, the action of which is to stretch them open; but half-way down, a screw passing

between the legs regulates the degree of opening. The value of these is in the permanency with which they retain any degree of opening given to them, pivot C. being liable to slip.

Beam C. consist of points sliding on a long bar, to which they may be clamped at any distance from each other. They are used for greater openings than pivot C. can safely span, and, when delicately made, for more accurate dividing: see GRADUATION.

Proportional C. have a point at each end of each leg, and the pivot somewhere on the length between the two ends, thus forming a double pair of C. opposite each other, head to head. If the pivot is midway between the points, the opening of each pair of points will be equal; if the distance from one pair of points be double that from the other, the openings will be as two to one; and so on for any ratio. When a single fixed proportion only is required, the pivot is fixed accordingly; but to adapt them for variable proportions, the pivot is a clamping screw, which moves in an elongated interval in the legs, and may be fixed at any point.

Triangular C. have three legs, so that the points of a triangle may be all transferred at once.

Calliper Compasses: see CALLIPERS.

COMPASSION, n. *kŏm-păsh′ŭn* [F. *compassion*, compassion—from L. *compassiōnem*, compassion—from *con*, *passus*, suffered]: sorrow excited by the distress or misfortunes of another; pity; sympathy; fellow-feeling. COMPASSI′ONATE, a. *-ŭn-āt*, inclined or disposed to compassion; merciful; pitiful; having a tender heart: V. to pity; to commiserate. COMPASSI′ONATING, imp. COMPASSI′ONATED, pp. COMPASSI′ONLESS, a. COMPASSI′ONATELY, ad. *-lĭ*.—SYN. of 'compassion': pity; mercy; sympathy; commiseration; clemency; leniency; condolence; —of 'compassionate': pitiful; merciful; sympathizing; tender; soft; kind; indulgent.

COMPAS′SIONATE ALLOW′ANCE: small pecuniary allowance made to the children of deceased British military and naval officers left in necessitous circumstances.

COMPATIBLE, a. *kŏm păt′ĭ-bl* [F. *compatible;* It. *compatibile*, suitable, compatible—from mid. L. *compat′ĭbĭlis*, said of a benefice that could be held together with another —from L. *con*, *patĭŏr*, I suffer]: that may exist with; suitable; fit; consistent with. COMPAT′IBIL′ITY, n. *-bĭl′ĭ-tĭ*, consistency; suitableness; agreement. COMPAT′IBLY, ad. *-ĭ-blĭ*.—SYN. of 'compatible': accordant; agreeable; congruous; consistent; suitable.

COMPATRIOT, n. *kŏm-pā′trĭ-ŏt* [F. *compatriote*, one's countryman, a compatriot—from mid. L. and It. *compatrĭōta*, compatriot—from L. *con*, *patrĭă*, one's native country]: a fellow-patriot: ADJ. of the same country; of like interests and feelings

COMPEER, v. *kŏm-pēr′* [F. *comparoir*, to appear in law —from L. *con*, *parĕō*, I obey]: in *Scots law*, to appear in a court by order, either in person or by counsel. COMPEER′

ING, imp. COMPEERED', pp. *-pērd'*. COMPEER'ANCE, n. *-ăns*.

COMPEER, n. *kŏm-pēr'* [Norm. F. *comper*, an equal, a comrade; F. *compère*, a godfather—from L. *compar*, like or equal to another—from *con*, *par*, equal]: an equal; a companion or colleague: V. to equal; to match.

COMPEL v. *kŏm-pĕl'* [L. *compel'lĕrĕ*, to drive or force together—from *con*, *pello*, I drive: It. *compellere*]: to drive on forcibly; to force; to oblige; to constrain. COMPEL'LING, imp. COMPELLED, pp. *kŏm-pĕld'*. COMPEL'LER, n. one who. COMPEL'LABLE, a. *-lă-bl*, that may be forced. COMPEL'LABLY, ad. *-lă-blĭ*.—SYN. of 'compel': to force; coerce; constrain; oblige; necessitate; bind.

COMPENDIUM, n. *kŏm-pĕn'dĭ-ŭm*, or COMPEND, n. *kŏm'pĕnd* [L. *compendĭŭm*, a shortening: It. *compendio*]: an abridgment; a summary; a book containing the substance of a larger work. COMPEN'DIOUS, a. *-dĭ-ŭs* [L. *compendĭōsus*, reduced to a small compass]: short; concise; abridged. COMPEN'DIOUSLY, ad. *-lĭ*. COMPEN'DIOUSNESS, n. the being contained within a narrow compass.—SYN. of 'compendious': brief; concise; short; summary; abridged; succinct; comprehensive;—of 'compendium': an abridgment; summary; epitome.

COMPENSATE, v. *kŏm-pĕn'sāt* [L. *compensātus*, reckoned or weighed one against another, counterbalanced——from *con*, *penso*, I weigh out carefully: It. *compensare*: F. *compenser*—*lit.*, to reckon or weigh one thing against another]: to make amends for; to give equal value to; to recompense. COMPEN'SATING, imp. COMPEN'SATED, pp. COMPENSATION, n. *kŏm'pĕn-sā'shŭn*, amends; recompense; what is given to supply a loss or make good a deficiency; satisfaction. COMPENSATION OF ERRORS, in *physics*, method of neutralizing errors which cannot be avoided, by introducing into the experiment or observation, others of an opposite nature, and equal in amount; the compensation pendulum illustrates the principle: see PENDULUM. COMPENSATION-BALANCE, a balance-wheel for a watch or a chronometer, so constructed as to make isochronal (equal time) beats, notwithstanding changes of temperature. COMPENSATION-STRIPS, two blades of copper and iron soldered together and fixed to the rod of a pendulum, the copper rod, which is the more expansible, being below the iron. As the temperature falls, the pendulum rod becomes shorter, but the strips, if in their normal state horizontal, now curve with the convex portion upward. If the temperature rises, the pendulum ball descends, but the strips which now curve with their convexity downward, make a compensation for this. Both in the former case and in that now described, the centre of oscillation of the pendulum is not disturbed. Compensation-strips are called also *compensating* strips. COMPEN'SATIVE, a. *-să-tĭv*, or COMPEN'SATORY, a. *-să-tĕr-ĭ*, making amends.—SYN. of 'compensate': to requite; reward; recompense; remunerate; counterbalance;—of 'compensation': recompense: remu-

neration; amends; satisfaction; requital; reward; meed; guerdon.

COMPENSATIO INJURIARUM, *kŏm-pĕn-sā′tĭ-o ĭn-jô-rĭ-ā′rŭm:* a defense against actions of damages for slander or the like. It is not a bar to action, but a *set-off* or counter-claim. It is not allowed to set-off one trespass or tort against another.

COMPENSA′TION (Counter-claim), in Scottish and Continental European Law: see Set-off.

COMPESCE, v. *kŏm-pĕs* [L. *compescere*—from *compes*, a fetter—from *con*, with; *pes*, a foot]: to hold in check; to restrain.

COMPETE, v. *kŏm-pēt′* [F. *compéter*—from L. *competĕrĕ*, to strive after—from *con*, *petĕrĕ*, to fly to, to seek: It. *competere*]: to seek together for a thing; to seek or strive for the same thing or position as another; to strive to be equal. Compe′ting, imp. Compe′ted, pp. Compet′itor, n. *-pĕt′ĭ-tėr*, one associated with another as a rival in seeking anything; one who competes. Competition, n. *kŏm′pĕ-tĭsh′ŭn*, rivalry; strife for superiority; emulation. Competitive, a. *kŏm-pĕt′ĭ-tĭv*, of or relating to competition, as a competitive examination; in the way of competition; emulous Compet′itory, a. *-tėr-ĭ*, acting in competition. —Syn. of 'competition': emulation; rivalry; rivalship; ambition; contention; contest; jealousy; opposition; struggle.

COMPETENT, a. *kŏm′pĕ-tĕnt* [F. *compétent*, competent, sufficient, able—from L. *com′petens*, or *compĕten′tem*, fit, suitable—from *com*, *petĕrĕ*, to fly to, to seek]: fit; suitable; adequate; able or qualified; in *law*, having power or right. Com′petence, n. *-tĕns*, or Com′petency, n. *-tĕn-sĭ*, fitness; suitableness; sufficiency; legal right or power Com′petently, ad. *-lĭ*.—Syn. of 'competent': fitted; qualified; adequate; sufficient; proportionate; commensurate; entitled.

COMPETITION, in the widest meaning of the term is nearly equivalent to the 'struggle for existence;' in this sense of the word there is competition throughout nature, between races and species. But nowhere is the agency of competition more marked than in human society. In the lower savage races, as in the black race of Africa or the natives of Australia, the scattered tribes have confined their contests to simple raids, and no single people or sub-race has gained marked pre-eminence over another, with the exception of the Hottentots and Bushmen, who were largely exterminated by negro tribes from the north. But as we ascend to the higher or white race, to the Semitic, the western Asiatic and European peoples, we have examples of the sudden rise to power and pre-eminence of vast hordes of barbarian peoples under Tamerlane, the Grand Mogul, Attila, and other conquerors, which have swept over vast territories and crushed the weaker, more peaceful, or even civilized but less resistant nations. The rapidity with which the Arabs overran and still dominate

northern Africa in language, social customs and religion; the Mongolian movements eastward into China, and westward to the borders of Europe; the successive rise and irresistible waves of migratory hordes from eastern to northern Europe, throughout pre-historic and historic times; the colonizing and expansion of the powers of Greece, of Rome, of the Norsemen, Anglo-Saxon, the Spanish, French, and German peoples; the success of the white race in the struggle for pre-eminence; the disappearance of the lower, weaker races, less favored intellectually and morally, some of which had become fossilized, or semi-fossilized, and practically inept and unfit,—all these phenomena, which are historic facts, are of a piece with what we witness, though in a less distinct and marked way, in the plant and brute realms. The term competition has been given a special significance in political economy to designate the struggle or race between producers to sell in the dearest market and between consumers to buy in the cheapest market. At the beginning of the modern business era, old legal and customary restrictions on trade and business were relaxed, on the theory that the workings of competition were sufficient to regulate business, prices, and wages. The wage workers were among the first to feel the evil effects of competition between individual workingmen in selling their labor, and they have organized unions in many trades as a means of regulating wages by collective bargaining. On the other hand, with the development of machinery and the need of large capital in business, competition proved expensive and wasteful to the capitalist, and has resulted in combination of capital in most of the leading industries which make free competition in the old sense of the term impossible. See POLITICAL ECONOMY; TRADE UNIONS; TRUSTS.

COMPIÈGNE, *kōng-pė-ān:* town in France, dept. of the Oise, on the river Oise, a little below its junction with the Aisne, 33 m. e.s.e. of Beauvais. A fine stone bridge crosses the river at this point. The town is irregularly built; it has a tribunal of the first instance, and one of commerce. The inhabitants are employed in hosiery, rope-making, boat-building, and in traffic in wood and corn. At C. is the magnificent palace, built anew by Louis XV., and splendidly fitted up by Napoleon, who often occupied it. It contains a library, a picture-gallery, and other objects of great interest. The park is extensive, and adjoining the gardens is the beautiful forest of Compiègne, extending over about 30,000 acres. C. is mentioned in the times of Clovis under the name of *Compendium:* and it was the seat of several political assemblies and ecclesiastical councils. It was at the siege of this town, 1430, that the Maid of Orleans was captured; and here, in 1810, Napoleon and Maria Louisa of Austria first met, on occasion of their marriage. Pop. 14,106.

COMPILE, v. *kŏm-pīl'* [F. *compiler*—from L. *compilārĕ,* to plunder, to rob—from *con, pilārĕ,* to pillage: It. *compilare*]: to select and arrange literary matter from one or

various authors; to write or compose; to select and put together for publication; to collect and rearrange. COMPI'LING, imp. COMPILED', pp. *-pīld'*. COMPI'LER, n. one who selects and arranges literary matter from various authors or sources. COMPILATION, n. *kŏm'pĭ-lā'shŭn*, a book compiled; a selection from an author, or from different authors.

COMPLACENT, a. *kŏm-plā'sĕnt* [L. *com'plăcens*, or *complăcen'tĕm*, being pleasing to—from *con*, *placĕō*, I please; F. *complaisant*]: pleasing and agreeable to one in manners and speech; having a desire or disposition to please; civil. COMPLA'CENCE, n. *-sĕns*, or COMPLA'CENCY, n. *-sĕn-sĭ*, pleasure, satisfaction; cause of pleasure. COMPLA'CENTLY, ad. *-plā'sĕnt-lĭ*, softly; in a complacent manner. COMPLACENTIAL, a. *kŏm'plă-sĕn'shăl*, marked by complacence. COM'PLACEN'TIALLY, ad. *-lĭ*, in an accommodating manner.—SYN. of 'complacency': pleasure; satisfaction; gratification; complaisance; civility.

COMPLAIN, v. *kŏm-plān'* [OF. *complaindre*, to complain—from mid. L. *complan'gĕrĕ*, to bewail—from L. *con*, *plan'gĕrĕ*, to beat one's breast in agony, to lament aloud]: to utter expressions of grief, censure, resentment, uneasiness, or pain; to murmur; to find fault; to present an accusation against. COMPLAIN'ING, imp.: N. expression or act of complaint. COMPLAINED', pp. *-plānd'*. COMPLAIN'ER, n. one who. COMPLAIN'ANT, n. in *law*, one who carries on a suit or action against another; a prosecutor or plaintiff. COMPLAINT', n. *-plānt'* [F. *complainte*, a complaint]: expression of grief, regret, etc.; murmuring; fault-finding; a bodily ailment; a charge against any one or a thing, etc. COMPLAIN'INGLY, ad. *-lĭ*.—SYN. of 'complain': to murmur; repine; lament; deplore; remonstrate; expostulate; regret; bewail;—of 'complaint': lamentation; murmuring; sorrow; grief; disease; illness; sickness; malady; ailment; disorder; distemper.

COMPLAISANT, a. *kŏm'plā-zānt'* [F. *complaisant*, affable, courteous—from L. *con*, *placĕō*, I please, I delight (see COMPLACENT)]: pleasing in manners; courteous; civil; polite. COM'PLAISANT'LY, ad. *-lĭ*. COM'PLAISANCE', n. *-zăns'* [F. *complaisance*]: desire of pleasing; civility.—SYN. of 'complaisance': courtesy; civility; suavity; affability; urbanity; good-breeding; deference; condescension;—of 'complaisant': civil; affable; obliging; courteous; well-bred; polite; attentive; accommodating; considerate; condescending; accessible.

COMPLEMENT, n. *kŏm'plĕ-mĕnt* [L. *complementum*, that which fills up or completes—from *con*, *plĕō*, I fill: It. *complemento:* F. *complément*]: a filling up or completing; that which is wanted to complete or fill up some quantity or thing; something added by way of ornament. COM'PLEMEN'TAL, a. *-mĕn'tăl*, or COM'PLEMEN'TARY, a. *-mĕn'tĕr-ĭ*, supplying a deficiency. COMPLEMENTAL MALES, short-lived additional males, complemental to hermaphrodite animals. They occur in the barnacles. COMPLEMEN'-

TING, n. *Complement*, in *trigon.*, the quantity required to make up any arc or angle to 90 deg., or the quarter of a circle; thus the C. of an arc of 60° is an arc of 30°: *supplement*, the quantity required to make up any arc or angle to 180 deg., or the half of a circle.—In *arith.*, the complement of a number is the number by which it falls short of the next higher number expressible by tens, as 10, or 100, or 1,000: thus, the arithmetical complement of 64 is 100—64 =36. Its use is chiefly in working proportions by logarithms.—In *astron.*, the complement is the distance of a star from the zenith as compared with its altitude.—In *music*, the quantity required to be added to any interval to complete the octave; for example, a fourth is the complement of a fifth, a third is that of a sixth, etc.

COMPLEMENTARY COLOR: when the light waves corresponding to certain colors are mixed together they appear to the eye as colorless greys approaching white or black depending various circumstances. Such colors are called complementary. Such pairs of colors are, for example, red and blue, green, yellow and blue, purple and green: see COLOR MIXTURE.

COMPLETE, a. *kŏm-plēt'* [L. *complētus*, filled up—from *con*, *plĕō*, I fill:: It. *completo;* F. *complet*, complete, entire]: filled up so as to make or be entire and perfect; without a flaw; perfect; not defective; finished; concluded; in *bot.*, applied to flowers possessing all the four whorls or parts: V. to fill up so as to make entire and perfect; to finish; to perfect; to accomplish. COMPLE'TING, imp. COMPLE'TED, pp. COMPLE'TION, n. *-plē'shŭn*, act of completing; fulfilment. COMPLETE'LY, ad. *-lĭ*. COMPLETE'NESS, n. state of being without a flaw. COMPLETORY, a. *kŏm-plē'tėr-ĭ*, fulfilling: N. the evening service; the compline of the Roman Catholic Church.—SYN. of 'complete, a.': entire; whole; total; perfect; finished; integral;—of 'complete, v.': to finish; close; conclude; terminate; end; perform; execute; achieve; effect; realize; accomplish; consummate; fulfil; effectuate.

COMPLEX, a. *kŏm'plĕks* [F. *complexe*—from L. *complexus*, entwined, encircled—from *con*, *plexus*, plaited, interwoven]: composed of two or more parts or things in an intricate arrangement; intricate; not simple; difficult. COM'PLEXLY, ad. *-lĭ*. COMPLEXITY, n. *kŏm-plĕks'ĭ-tĭ*, state of being intricate.

COMPLEXION, n. *kŏm-plĕk'shŭn* [F. *complexion*, temper, disposition—from L. *complexĭōnem*, a combination, a connection]: that which shows a connection or correspondence, as between the color of the skin and health of the body; the hue or color of the skin, particularly of the face; color of the whole skin; natural temperament or disposition of the body; the color or general appearance, as of the sky or circumstances. COMPLEX'IONAL, a pertaining to. COMPLEX'IONALLY, ad. *-ăl-lĭ*. COMPLEX'IONED, a. *-shŭnd*, having a certain hue of skin; of a peculiar natural temperament.

COMPLEXION: in a medical sense, the temperament, habitude, and natural disposition of the body; in general use, the color of the skin existing in the epidermis and varied by a mixture of the pigment cells with the epidermic cells. The epidermis is also the seat of the colors of freckles and other superficial marks. In people of a dark complexion, especially in negroes, the epidermis is very thick, and its cells are filled with minute black or otherwise colored pigment granules, many of which also lie loose among them. The thickness of the epidermis in these people render it less penetrable by the rays of heat, and it is hence and not on account of its color, which would have an opposite effect, that a negro can bear the exposure of his skin to a degree of solar heat which would blister that of a person of light complexion. Blumenbach divides the human race into five classes as to complexion: Caucasian, white; Mongolian, olive; Ethiopian, black; American, red; and Malay, tawny. Dr. Hunter makes a closer distinction, including under *black*, Africans under the equator, inhabitants of New Guinea, and inhabitants of New Holland; *swarthy*, the Maories in the n. of Africa, and the Hottentots in the s.; *copper*, East Indian; *red*, American aborigines; *brown*, Tartars, Persians, Arabs, Africans on the coast of the Mediterranean, and Chinese; *brownish*, the inhabitants of the s. portions of Europe, as Sicilians and Spaniards, as well as the Abyssinians in Africa, Turks, Samoides, and Laplanders; and *white*, most of the European nations, as Swedes, Danes, English, German, Polanders, Georgians, and inhabitants of the islands in the Pacific Ocean.

COMPLEX NUMBERS: the so-called imaginaries of common algebra, the numbers $a+bi$, where a and b are real and i stands for $\sqrt{-1}$. The real numbers from $-\infty$ to $+\infty$ form a simple system, based on the single unit 1. The imaginaries are based on two units, 1 and i, and therefore form a compound, or complex, system. Hence the name 'complex numbers,' devised by Gauss to avoid the misleading implication conveyed by the term 'imaginary.' We commonly employ real numbers in counting or in measurement, and thus associate them with external objects. But numbers themselves do not occur in nature as physical things; they are mental forms serving to fix ideas. From this proper point of view the complex numbers are as real as any other. Nor are they mere mental forms alone, without concrete significance. It is true that they are not adapted for counting a row of objects. But they have other equally concrete interpretations. Thus if the unit $i=\sqrt{-1}$ be multiplied twice into a number a, the result is $i^2a= -a$. Now if a and $-a$ are laid off in the usual way on a straight line from an origin O, $-a$ may be derived from a by rotation through 180° about O; the number -1 is thus interpretable as this rotation. Then i may be represented as a rotation through 90°, since this repeated (i^2) gives

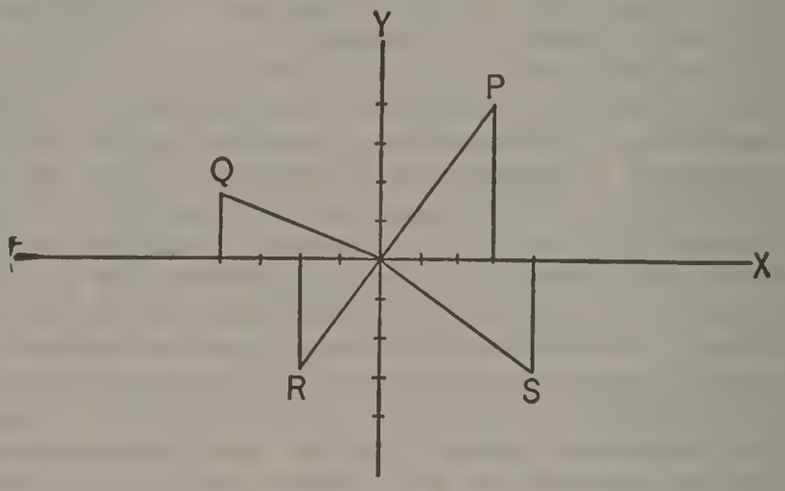
a rotation through 180°. The number ia (or ai) would be represented by a line through O perpendicular to the line a and of the same length. The number $2i$, applied to a, would similarly be interpreted as doubling the length of a and turning the resulting line through a right angle. The interpretation of any complex number will be considered below, in connection with graphical representation. Enough has been said to show that these numbers, so far from being void of content, actually suggest a new reality, viz., a geometric algebra.

The complex numbers made their first appearance in the 16th century in connection with the solution of algebraic equations. At that time even the negative numbers were regarded as fictitious and absurd. They are mentioned by Stifel and Cardano, but they were not actually used until the time of Descartes. Negative roots of equations were familiar to Cardano, but mainly as inconveniences to be avoided by restatement of the problem considered. It will therefore readily be understood that to the mathematicians of that age the complex numbers were alternately a mystery and an absurdity. Cardano was the first to recognize them; he even ventured one or two simple calculations with them, but with apologies and misgivings. Bombelli went somewhat further, and the imaginaries appear as roots of equations in the writings of Girard (1629). But for nearly three hundred years from their first appearance they continued to be regarded merely as curious and mysterious philosophical subtleties of analysis, which might indeed be formally employed without leading to contradiction, but which were of dubious validity and void of real significance. They were first assigned to their proper place in mathematics by the overwhelming authority of Gauss (1831). By this time they were in common use, although their true nature was still little understood. The contradistinctive terms 'real' and 'imaginary' were introduced by Descartes. De Moivre connected the complex numbers with trigonometry and invented (1730) the formula $(\cos\varphi + i\sin\varphi)^n = \cos n\varphi + i\sin n\varphi$ which bears his name. To Euler is due the formula $e^{\varphi i} = \cos\varphi + i\sin\varphi$, and the symbol i for $\sqrt{-1}$ was also suggested by him. One of the most important advances was the graphic representation, which Gauss made the common property of all mathematicians, but which had been invented by Wessel (1797) and, independently, by Argand (1806). The idea is traceable as far back as Wallis (1685).

The complex numbers are now used in all branches of mathematics, even in mathematical physics where their 'reality' certainly receives a crowning sanction. To them is due the symmetry and generality of the science. Without them it would be impossible to give general forms of solution of problems, and nearly every proposition would have to be qualified for each special case. Thus a quadratic equation would have sometimes two roots

and sometimes no root, etc. In many branches of the science, for example the theory of functions, the complex numbers are the predominant feature; without them little would be left but disconnected theorems, many of which would in fact hardly have been discovered at all.

In the graphical representation the complex numbers $x+yi$ are represented by the points of a plane, x and y being laid off as coordinates as in analytic geometry.



Thus in the figure the points P, Q, R, S represent the numbers $3+4i$, $-4+2i$, $-2-3i$, $4-3i$ respectively. The real numbers x lie on the one axis (called the axis of reals), the 'pure imaginaries' yi on the other (the axis of imaginaries). The line from the origin O to the point $x+yi$ is called the 'vector' of $x+yi$; its length $r=\sqrt{x^2+y^2}$ is the 'absolute value' of $x+yi$; the angle θ which it makes with the axis of reals is the 'angle' of $x+yi$. The relations $x=r\cos\theta, y=r\sin\theta$ lead to $x+yi=r(\cos\theta+i\sin\theta)$, the 'polar form' of $x+yi$. The 'conjugate' numbers $x+yi$ and $x-yi$ are represented by points symmetric to the axis of reals; they have the same absolute value r and opposite angles θ, $-\theta$. The representation is perfect, inasmuch as every number $x+yi$ corresponds to one point in the plane, and every point in the plane corresponds to one complex number. It will be observed that the complex number can be used in counting points in the plane as real numbers are used in counting objects in a row.

The simple arithmetical operations as applied to complex numbers are now expressible in geometric form. Thus the sum of x_1+y_1i and x_2+y_2i, viz., $x_1+x_2+(y_1+y_2)i$, is found by geometric addition of their vectors, as in the composition of forces in mechanics. Subtraction is performed in the same way, the vector of the subtrahend being reversed in direction. These are merely extensions of the ordinary process of adding two lengths together, or subtracting one length from another, used in the case of real numbers. Multiplication and division, on the other hand, present new features. Here it is convenient to use the polar form for the factors: $x_1+y_1i=r_1$

$(\cos\varphi_1+i\sin\varphi_1)$, $x_2+y_2i=r_2(\cos\varphi_2+i\sin\varphi_2)$. The product is $(x_1+y_1i)(x_2+y_2i)=r_1r_2(\cos\varphi_1+i\sin\varphi_1)(\cos\varphi_2+i\sin\varphi_2)=r_1r_2$ $(\cos\varphi_1\cos\varphi_2-\sin\varphi_1\sin\varphi_2+$ $(\cos\varphi_1\sin\varphi_2+\sin\varphi_1\cos\varphi_2)i\varphi=r_1r_2(\cos(\varphi_1+\varphi_2)+i\sin(\varphi_1+\varphi_2))$. Thus it appears that the absolute value of the product is the product r_1r_2 of the absolute values r_1, r_2 of the factors, and the angle of the product is the sum $\varphi_1+\varphi_2$ of the angles of the factors. Multiplication is therefore effected by turning the vector of the one factor through the angle of the other and multiplying its length by the length of the other. Division is simply the reverse process. Any number of factors can be multiplied together by adding their angles and multiplying their lengths. If they are all equal, the formula becomes $(x+yi)^n=r^n(\cos n\varphi+i\sin n\varphi)$. Conversely the formula for extraction of the nth root is $(x+yi)^{1/n}=r^{1/n}(\cos\varphi/n+i\sin\varphi/n)$. But since the angle θ of the given $x+yi$ is really any one of the angles $\varphi+2k\pi(k=0, 1, 2, \ldots)$, it is clear that φ/n may be any one of the angles φ/n, $\varphi/n+2\pi/n$, $\varphi/n+4\pi/n$, ... These angles give different nth roots of $x+yi$ up to $k=n-1$, beyond which point the series of roots repeats itself since $\varphi/n+2n\pi/n=\varphi/n+2\pi$, etc. We have here a fundamental theorem of algebra, viz., every complex (or real) number has precisely n different nth roots. For example, for the 6th roots of 1 we have $r=1$, $\varphi=0$, $\varphi/6=0$, 60°, 120°, 180°, 240°, 300°, giving the six roots: $\cos 0+i\sin 0=1$, $\cos 120°+i\sin 120°=-\frac{1}{2}+\frac{1}{2}\sqrt{-3}$, $\cos 240°+i\sin 240°=-\frac{1}{2}-\frac{1}{2}\sqrt{-3}$, $\cos 60°+i\sin 60°=\frac{1}{2}+\frac{1}{2}\sqrt{-3}$, $\cos 180°+i\sin 180°=-1$, $\cos 300°+i\sin 300°=\frac{1}{2}-\frac{1}{2}\sqrt{-3}$. These are graphically represented by six points at equal intervals on the circle of unit radius about the origin.

The higher functions, such as $\log(x+yi)$, e^{x+yi}, involve the theory of infinite series. Assuming the expansion $e^x=1+x+x^2/2+x^3/3!+\ldots$, we find on replacing x by φi $e^{\varphi i}=1+\varphi i-\varphi^2/2-i\varphi^3/3!+\ldots=1-\varphi^2/2+\varphi^4/4!+\ldots+i(\varphi-\varphi^3/3!+\varphi^5/5!-\ldots)=\cos\varphi+i\sin\varphi$. By means of this the polar form $r(\cos\varphi+i\sin\varphi)$ of any complex number is abbreviated into $re^{\varphi i}$, a very compact expression. The equation $e^{\varphi i}=\cos\varphi+i\sin\varphi$ serves to connect the exponential with the trigonometric functions and leads to many important developments. Thus, for example, for $\varphi=\pi$ we find $e^{\pi i}=\cos\pi+i\sin\pi=-1$, hence $\pi i=\log(-1)$, from which it appears that logarithms may be interpreted even in the case of negative numbers. The theory of imaginaries everywhere leads to a perfection and generalization of analysis; it is one of the most perfect instruments that the human mind has ever employed.

Regarding graphical representation it may be noted that the plane is not the only available surface for this purpose. In fact if a sphere be placed with its center at the origin in the plane, the whole system of complex numbers may be transferred to the spherical surface by

simply joining each point $x+yi$ of the plane to either pole of the sphere (the plane being taken as equatorial), noting the point where the joining line cuts the sphere, and assigning $x+yi$ to this point. Here again every $x+yi$ corresponds to one point on the spherical surface and vice versa. For many purposes this spherical representative is more convenient than that in the plane. Thus every rotation of the sphere about a diameter amounts to a linear transformation $z'=(\varphi z+\beta)\backslash(\vartheta z+\varsigma)$ of the number $z=x+yi$ ($\varphi,\beta,\vartheta,\varsigma$ being constants). Thus $z'=1\backslash z$ is a rotation about the point $z=\pm 1$ and interchanges the two hemispheres above and below the equatorial plane.

The question naturally presents itself whether there may not be other systems of complex numbers different from the $x+yi$ here considered. There actually are such systems, in fact an endless number of them, and among them are a few which are of much practical value. Quaternions (q.v.) is a system with *four* units, furnishing a geometric algebra of three-dimensional space. And there are other forms of Vector Analysis also used in geometry. All of these higher systems differ from the complex numbers in their fundamental laws. Thus the product of two quaternions q_1q_2 depends on the orders of the factors, q_1q_2 being different from q_2q_1; we say that the quaternion multiplication is not commutative. In our ordinary algebra addition and multiplication are commutative: $a+b=b+a$, $a\,b=b\,a$; associative: $a+(b+c)=(a+b)+c$, $a.bc=ab.c$; and multiplication is also distributive: $(a+b)c=ac+bc$. Also a product cannot vanish unless one of its factors vanishes. These conditions, it is found, exactly characterize our common system. They are satisfied by the complex numbers $x+yi$ (including the real numbers) and by no other kinds of numbers. All the higher systems involve one or more exceptions to the ordinary laws. Such systems have been extensively studied by mathematicians and a considerable literature has grown up under the names Quaternions, Vector Analysis, Linear Algebra, etc. A different type, the imaginaries of Galois, is employed in the higher theory of equations.

COMPLICATE, v. *kŏm′plĭ-kāt* [L. *complĭcātus*, folded together—from *con*, *plĭcō*, I fold: It. *complicare:* F. *compliquer—lit.*, to fold and twist together]: to involve; to entangle; to make intricate; to confuse. COM′PLICA′TING, imp. COM′PLICA′TED, pp. *-kā′tĕd.* COM′PLICA′TION, n. *-kā′shŭn.* COM′PLICATE, a. intricate; confused. COM′PLICATELY, ad. *-lĭ.* COM′PLICACY, n. *-kă-sĭ*, state of being intricate. COM′PLICA′TIVE, a. *-kā′tĭv*, tending to involve.

COMPLICATION, in Psychology: refers to those perceptions, ideas and feelings whose elements or members or constituent parts are derived from disparate sense departments (J. F. Herbart and W. Wundt). The 'taste' of an orange, *e.g.*, rests upon a gustatory-olfactory-tactual

complication, the sight of a heavy weight upon a tactual-visual-tendinous complication, and the distress at the sight of another's injury involves a complication which includes organic and visual elements. (2) The mode of synthesis peculiar to the single perception or idea, as distinguished from association which obtains between different ideas (James Ward). (3) One of the modes of perceptual synthesis (G. F. Stout). COMPLICATION PENDULUM and COMPLICATION CLOCK, apparatus for making synchronous sensory impressions. They are employed in the *complication experiment* to determine the temporal displacement, under attention, of elements in a complication; *e.g.*, when a sound and a color are presented to an observer at one and the same instant, the sound may, according as the attention is shifted, be heard either before or after the color is seen.

COMPLICITY, n. *kŏm-plĭs′ĭ-tĭ* [F. *complicité*, the being an accomplice—from *complice*, privy to (see COMPLEX)]: state of being an accomplice or sharer in guilt; condition of an accomplice. COMPLICE, n. *kŏm′plĭs*, an associate or accessory in guilt; an accomplice.

COMPLIMENT, n. *kŏm′plĭ-mĕnt* [F. *compliment*—from It. *complimento*, compliment, civility—from L. *complērĕ*, to fill up—from *con*, *plĕō*, I fill]: an expression of civility, respect, or regard—used in this sense usually in the plu., as, *my compliments* to a friend; a present or favor bestowed: V. *kŏm′plĭ-mĕnt′*, to address with expressions of approbation, esteem, or respect; to flatter; to praise; to congratulate. COM′PLIMEN′TING, imp. COM′PLIMEN′TED, pp. COM′PLIMEN′TER, n. one who. COM′PLIMEN′TAL, a , or COM′PLIMEN′TARY, a. *-mĕn′tĕr-ĭ*, containing or expressing civility, respect, or praise. COM′PLIMEN′TALLY, ad. *-tăl-lĭ*.—SYN. of 'compliment, n.': flattery; adulation;—of 'compliment, v.': to praise; flatter; adulate; congratulate.

COMPLINE, or COMPLIN, n. *kŏm′plĭn* [OF. *complie*, a compline: F. *complies*, complines—from mid. L. *complētæ*, completed—from L. *complērĕ*, to fill up or complete]: the last division of the breviary of the Roman Catholic Church, the offices being named *matins*, *prime*, *tierce*, *sext*, *nones*, *vespers*, and *compline;* the last prayer at night, so called because it fills up or closes the services of the day: see CANONICAL HOURS.

COMPLUTENSIAN, a. *kŏm′plô-tĕn′sĭ-ăn*, or COMPLUTENSIAN POLYGLOT [*Complūtum*, ancient name of Alcala de Henares, Spain, where published]: designating a polyglot Bible published by Cardinal Ximenes at very great cost to himself, in six vols., 1502-17. The first four vols. contain the Old Test., with the Hebrew, Latin, and Greek text in three columns, the Targum, and a Lat. version of the same. The fifth vol. contains the Greek New Test. and the Lat. Vulgate. The last vol. has the vocabularies and indexes. Pope Leo X. authorized its publication, 1522. Only 600 copies of this most valuable polyglot of the Scriptures were printed.

COMPLY, v. *kŏm-plī′* [OF. *complie*, to complete, to perfect—from L. *complērĕ*, to fill up, to complete: It. *complire*, to accomplish, to complete—from L. *con*, and *plērĕ*, to fill]: to act in accordance with the wishes of another; to yield to; to accord with; to be obsequious to; in *OE.*, to fulfill or complete. COMPLY′ING, imp.: ADJ. obsequious; yielding. COMPLIED′, pp. *-plīd′*. COMPLI′ABLE, a. *-ă-bl*, that can bend or yield. COMPLI′ABLY, ad. *-blĭ*. COMPLI′ANCE, n. *-ăns*, act of yielding to a desire or command; submission. COMPLI′ANT, a. *-ănt*, bending; yielding; disposed to yield. COMPLI′ANTLY, ad. *-lĭ*, in a yielding manner.—SYN. of 'compliance': submission; obedience; execution; consent; performance; concession;—of 'comply': to conform; yield; submit; agree; acquiesce; consent.

COMPONÉ, *kom-pō′na*, or GOBONY, *gō′bō-nĭ*, in Heraldry: a bordeur, pale, bend, or other ordinary, made up of two rows of small squares, consisting of alternate metals and colors.

COMPONENT, n. *kŏm-pō′nĕnt* [L. *compōnĕn′tĕm*, placing or laying together—from *con*, and *pōnō*, I place]: an elementary part of a compound body; a constituent part: ADJ. constituent; helping to form a compound.

COMPORT, v. *kŏm-pōrt′* [F. *comporter*, to bear, to behave—from L. *comportārĕ*—from *con*, *porto*, I bear or carry]: to agree with; to suit; to behave or conduct. COMPORT′ING, imp. COMPORT′ED, pp. COMPORT′ABLE, a. *-ă-bl*

COMPOSE, v. *kŏm-pōz′* [F. *composer*, to compose—from mid. L. *compausārĕ*—from L. *con*, *posĭtus*, placed or set: It. *composto*, composed]: to form one entire body or thing by joining together several individuals, things, or parts; to write as an author; to calm; to quiet; to place or dispose in proper form; to set up types; to form a piece of music by putting notes together according to the laws that regulate melody and harmony. COMPO′SING, imp. COMPOSED, pp. *kŏm-pōzd′*: ADJ. calm; sedate; tranquil; formed; constituted. COMPO′SEDLY, ad. *-lĭ*, sedately; calmly. COMPO′SEDNESS, n. COMPO′SER, n. *-pō′zĕr*, one who composes; one who writes music. COMPOSITION, n. *kom′pō-zĭsh′ŭn* [F.—L.]: the act of composing; the thing composed; any mass or body formed by combining two or more substances; combining ideas or thoughts, arranging them in order, and committing them to writing; a written book or article; any union, combination, or disposition of parts; the payment of a part only of a debt accepted in lieu of the full debt; the sum so paid; *synthesis* as opposed to *analysis;* in *OE.*, consistency or congruity; agreement or compact. COMPOSING-FRAME, the stand on which a printer's cases rest. COMPOSING-STICK, n. a small instrument in which types are set. COMPOSITE, a *kŏmpŏz′-ĭt* [F. *composite*—from L. *compositus*]: made up of parts; compound; in *bot.*, having the structure of the *Compositæ*. COMPOSITE ORDER, in *arch.*, the last of the five orders of columns, so called from its capital being made up of parts borrowed

from the others: see COLUMN. COMPOSITE NUMBER, a number that can be measured or divided by other numbers greater than a unit or one. COMPOSITE PORTRAITS, portraits obtained by combining several others. Francis Galton, 1877–78, thus combined from two to nine portraits, with the result of obtaining a normal one superior to any of those of which it was composed. COMPOSITION-CLOTH, a waterproof material made from long flax. COMPOSITION-METAL, a kind of brass, composed of copper, zinc, etc., used for the sheathing of ships. COMPOSITIVE, a. *kŏm-pŏz'-ĭ-tĭv*, able or tending to compound. COMPOS'ITOR, n. *-tėr* [F. *compositeur*—from L. *compositōrĕm*]: among *printers*, one who sets types, and puts them into pages and forms: see TYPE. COMPOS MENTIS [L.]: of sound mind; sane: see INSANITY.—SYN, of 'compose': to settle; establish; confirm; fix; institute; found; erect; form; figure; shape; fashion; constitute; construct; originate; adjust; regulate; tranquilize; quiet; soothe;—of 'composed': calm; still; quiet; serene; tranquil; peaceful; placid; settled.

COMPOSING MACHINES: a general title for all classes of machines that compose or set either type or matrices, arranging them in lines and columns for printing. There are four prominent types of these: (1) Those that set matrices in line and cast therefrom a solid line or slug, as the linotype, monoline, and typograph; (2) those that cast and set type, as the monotype and graphotype; (3) those that set and distribute ordinary founders' type, these being the only ones properly styled type-setting machines, as the Simplex (modernized Thorne), Empire, Dow, Fraser, Kastenbein, etc.; and (4) those that impress male dies into soft material and cast lines from these impressions.

Historically, the type-setting machine comes first, William Church, of Connecticut, devising a machine which was patented in England in 1822, that was the first practical effort in this direction. He employed a keyboard, and stored the type in channels. From 1842 to 1872 there were 57 United States patents granted on composing machines, and from 1822 to 1872 a like number were patented in Great Britain. The most noteworthy of these were the Mitchell and the Alden machines in the United States, and the Kastenbein, Hattersley and Fraser machines in England. The difficulty with all of them seems to have been that they required several persons to operate each machine, and that the consequent cost was very nearly the same as for composition by hand. From 1872 up to 1880 there were invented or constructed over 50 different machines designed to supersede the compositor, practically all of which failed of commercial success. During the period between 1880 and 1890 the Thorne type-setting machine, originating in Connecticut, came into considerable use. During this period the Burr and McMillan machines also found some sale in the United States, and the Fraser, Hattersley, and Kastenbein in England and Germany. In 1898 the Thorne was re-

modeled and renamed the Simplex. The types are contained in 90 channels, set radially in the periphery of an upright cylinder. As the operator fingers the keys, the types called for are pushed out of the lower ends of the channels and carried around on a circular raceway to the point where they are brought into line. This line extends to a considerable length, without any reference to the length of line in which the matter set up is to appear finally. A second operator draws to him from the composed type thus emerging enough to form a line of the desired length. This he puts in the galley and justifies, or spaces out to length, by hand. The leads, or spaces between lines, are also inserted by this operator.

After type set on the Simplex machine has been printed from, or molded for electrotyping, it is taken by a boy, who puts the type, a galley at a time, into a holder, which feeds it, a line at a time, into a short cylinder superimposed over the type-cylinder previously mentioned, from which it passes to the lower cylinder ready for composition again. Distribution and composition proceed simultaneously. Specially nicked type and combinations of wards or lips at the magazine entrances accomplish the distribution. The arrangements are such that the keyboard operator can also do the justifying (by hand), or two operators can be employed, as suits the convenience of the user.

The Empire machine, first known as the Burr, is a modification of the Kastenbein. It was produced in New York, and, like the Kastenbein machine, requires three operators. The distributor is a separate machine, that, when loaded with pages of type, separates them one by one and pushes them into the channels of a magazine. This magazine is placed on the top of the setting-machine, which is supplied with a keyboard. The operator releases the lower type from the channels by manipulating the keys, and the lines are justified by a second operator by hand.

The Kastenbein machine, which has had some sale in Europe, is very similar to the Empire, and does not rerequire a separate description. Both employ nicked type in distributing.

The McMillan machine, developed in Ilion, N. Y., was provided with automatic justification, thus dispensing with the labor of one operator. When a line of type was composed, it was taken up automatically by a carrier and transferred to a point where the spaces between the words were exchanged for a size larger spaces; if the line was not then filled to measure, it was caried on to a third and a fourth stage, until large enough spaces were supplied to spread it to the width of the column. This justifying mechanism was very ingenious, but complicated. The distributer was a separate machine, operating quite simply at a speed of about 10,000 ems an hour.

The Cox type-setting machine attracted considerable notice in the printing trade in Chicago and New York in

1897. The most unique feature of Cox's machine was the employment of crimped or corrugated spaces made of lead. The line was overset in length, and then squeezed down to measure by compressing the corrugations. This justification was satisfactory in some respects, but the crimped spaces created difficulty in many others, and its use was abandoned.

The Calendoli type-setting machine, developed in France by a priest of that name, has attracted much attention because of the wonderful claims made for its speed. It employs short types grooved so as to slide on rails, and the keyboard has numerous combinations to enable the operator to strike whole words or syllables at a single motion of the hand.

There was exhibited at the Pan-American Exposition in Buffalo, in 1901, a one-man type-setting machine that appeared to work successfully. It is the invention of Alexander Dow, and is the latest machine handling founders' type that is adapted to handle the several sizes in one machine. The justification or spacing out of the lines is entirely automatic, requiring no thought by the operator. The machine measures the line, calculates the proper size and number of spaces, and, discarding the dummy spaces inserted during the original setting, substitutes the proper sizes and pushes the type into the galley. It is in many respects a counterpart of the abandoned Paige machine. A distributer adapted to supply this machine has been constructed with a capacity for supplying three setting-machines.

Among other composing-machines that have been built in the United States, and attracted the attention of the printing trade at one time or another, are the Converse, projected about 1894, which did good work, but was obstructed by previous patents; the Paige, on whose development nearly $2,000,000 was spent, and which proved too costly to construct for the general market; the St. John typobar, consisting of cold-pressed metal clamped on a steel base, to form a line; the Lagerman typotheter or Chadwick, a little machine for enabling a compositor to set type with both hands; the Johnson, which justified the lines by sawing a space of the required width; the composite type-bar machine, in which short, notched type were transformed into a line or type-bar by casting metal around their bases and between them; the Sears, in which dies were impressed in a block of wood, and a slug cast from the matrix thus formed; the Risley and Lake, in which the type were impressed in a soft sheet like blotting paper, and a stereotype taken after a quantity had been thus impressed, and the Heath matrix typograph, of the same class.

About 1890 the linotype became a commercial machine and began to take the market. The linotype is the invention of Ottmar Mergenthaler, who spent nearly 15 years of his life perfecting the machine which has largely revolutionized methods of type-setting. See LINOTYPE.

The Scudder monoline machine produces a slug like that of the linotype, and has been barred out of the United States as an infringing machine. It is being manufactured in Canada, and has been supplied to a considerable number of printing-offices there and in Europe. It is much smaller than the linotype and does a more restricted class of work. Twelve characters are carried on a single matrix, and the position as to height in the line determines which of the 12 shall be used. Eight kinds of matrices thus serve to give a total of 96 characters, and because there are so few matrices the mechanism for distributing them after using becomes very simple. The matrices have hooks on top which engage wires leading to their magazines, and readily slide back to position.

The Lanston monotype is the leading machine of the class that both casts and sets type. It employs first a keyboard, the operation of whose keys results in punching holes in a paper tape. The combinations of holes represent the different type characters. This tape is carried to a type-casting machine and fed in; as it passes along, it controls the positioning of the dies before the mold, so that the characters are cast and assembled into lines and columns in the proper order for printing. The keyboard machine or perforator is entirely separate from the casting mechanism. It includes 225 characters and a set of justifying-keys. The operator, having decided on the size and face of type and width of column, adjusts certain gauges and proceeds to manipulate the keys. As he approaches the end of a line, a pointer on a dial indicates to him what justifying-keys he should strike to make the line of proper length. These perforations are made at the end of each line. Any errors made are repeated in the casting-machine, and must be corrected later by hand. The product of his machine is a paper tape about two and a half inches wide, with rows of holes, each row representing a type character.

The tape is taken to a type-casting machine and fed in backward, so that the space casting arrangement is first adjusted before casting a line, so that the thickness of spaces required to justify that line accurately may be produced as required. The tape is fed in with a step-by-step motion and as each pair of holes is presented to the proper part of the machine, a blast of air which passes through the holes, serves to set in position the proper parts to produce whatever type character is called for. The casting-machine is automatic, but, being delicate and complicated, requires one attendant to two machines. The matrices are made separately, but are locked together in a frame that jumps from point to point, in order to bring the required letter to the face of the mold for casting. By changing the matrices and mold, any size of face or type within certain limitations can be produced from the one machine. A width of seven inches is also provided for, being the greatest on any composing-machine.

The Goodson graphotype machine operates on princi-

ples very similar to those of the monotype just described. Its mechanism is electrical, however, and both perforator and caster are much smaller machines. The number of characters on the keyboard is limited to 100, so that italics and small capitals cannot be produced with the full complement of other characters.

COMPOSITÆ, n. plu. *kom-poz′-ĭ-tē* [L. *compositus*, put together, compounded (see COMPOSE)], (called by Lindley ASTERACEÆ, and by some botanists SYNANTHERÆ): nat. ord. of exogenous plants, distinguished by *compound* or *composite flowers*, i.e., heads of flowers which are composed of a greater or smaller number of florets (generally of small size) congregated upon a common receptacle, and surrounded by bracts which form a leafy or scaly involucre, so as to resemble single flowers, which name they ordinarily receive. Another very marked characteristic is, that the anthers of each floret cohere into a cylindrical tube. The order contains both herbaceous plants and shrubs; those which are natives of cold climates being generally herbaceous, and those found in warm regions shrubby, or even arborescent. They have alternate or opposite leaves, without stipules. The florets are either unisexual or hermaphrodite—those of the circumference (or ray) often differing in this respect, as well as in form and color, from those of the centre (or disk) of the same head. Bracts (*paleæ*) are often interspersed with the florets upon the receptacle. The calyx is superior, closely adhering to the ovary, and essentially united with it, and afterward with the fruit, its limb either obsolete or membranous, crowning the ripened fruit, often divided into bristles, hairs and feathers, which form a PAPPUS (q.v.). The corolla is of one petal, superior, either strap-shaped or tubular, both forms often appearing in different parts (ray and disk) of the same flower (or head) sometimes 2-lipped, very often 5-toothed. The stamens are equal in number to the teeth of the corolla, 4 or 5, and alternate with them. The ovary is 1-celled, with a single erect ovule; the style simple, with 2 stigmas; the fruit dry and not opening (see ACHENE); the seed destitute of albumen.—This is the largest of the natural orders of flowering plants, containing upward of 1,000 genera, and almost 10,000 known species. They are distributed over all parts of the world; but increase in number from the poles to the tropics, and thence, again, diminish toward the equator. In the Linnæan sexual system, they form a distinct class, SYNGENESIA. Jussieu subdivided the order into three sections, and though other subdivisions have been proposed, these are generally recognized as sub-orders—CYNAROCEPHALÆ, having the florets all tubular; CORYMBIFERÆ, having a disk of tubular florets, surrounded by a ray of strap-shaped florets; and CICHORACEÆ, having all the florets strap-shaped. The *Cichoraceæ* abound most in cold, and the *Corymbiferæ* in warm climates. The artichoke and thistle are familiar examples of the *Cynarocephalæ;* the daisy, aster, dahlia, chrysanthemum,

camomile, and sunflower of the *Corymbiferæ;* and the dandelion, chicory, and lettuce of the *Cichoraceæ.* By cultivation, many of the *Corymbiferæ* are changed so that the florets of the disk assume the same appearance with the florets of the ray, as may be seen in the dahlia, chrysanthemum, aster, etc., and they are then said to be double, although the change which they have undergone is very different from that which has taken place in double flowers of other kinds. The compositæ are not, in general, of very great importance in domestic economy or in the arts, though many are among cultivated and useful plants. Only a few, as the artichoke, scorzonera, salsify, Jerusalem artichoke, endive, and lettuce, are used for food, and these are of inferior importance. A very few, as safflower and saw-wart, afford dye-stuffs. The use of chicory-root as a substitute for coffee is well known. From the seeds of some, a bland fixed oil is expressed—the sunflower, madia, and ram-til being the most important. Many are valuable for medicinal properties, as chamomile, arnica, wormwood, and some other species of artemisia, elecampane, tussilago, blessed thistle, etc. Many are characterized by bitterness; stimulating properties are of frequent occurrence; also anodyne, diaphoretic, diuretic, and narcotic properties. Some, as arnica, are poisonous.

COMPOSITE IDEA. an idea or mental content formed by the union of several simple mental contents. The idea of a table is composite since there enter into it ideas of colour, form, hardness, texture, weight, etc. Almost all our actual mental states are composite, in distinction from the simple sensations and feelings into which they may be analyzed. The distinction between simple and composite or 'complex' ideas was made much of by John Locke and David Hume (q.v.). They attempted to show that all mental contents, however elaborate, are derived from simple ideas (impressions or sensations).

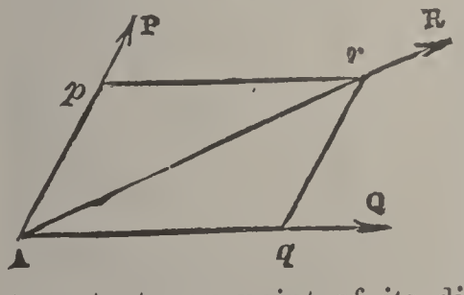
COMPOSITION AND DIVISION, Fallacies of: to argue that what is true of a number of individuals taken separately will be true of them taken together or as an organic whole is to commit the fallacy or error of *composition.* For instance, Zeno the Eleatic, when he argued that, because one could not hear any sound from the dropping separately of the grains in a basket of corn, therefore the whole basketful should make no sound when dropped, committed this fallacy. The Fallacy of division is the converse of that of composition; as, for instance, if we should argue that, because a college faculty as a whole is efficient, therefore every member is equally efficient.

COMPOSI'TION, in Art: such an arrangement of the separate objects represented as that they shall all manifestly tend to bring out the central thought or idea which animates the whole. Episodes and digressions are less admissible in æsthetic works of art than in poetry, and less in plastic art than in painting. In all works of art, it is to be borne in mind that the story is told to, and apprehended by, the

eye alone. There is no surer proof of failure in æsthetic C. than when a picture is found to be totally unintelligible, even to intelligent persons, without the aid of a description in a catalogue. Rules are of little or no avail in this matter. There is but one canon of universal application—viz., that the artist should, in the first place, make it clear to his own mind what his work is to express; and that he should then consider by what arrangement of the objects this will be best accomplished.

COMPOSI'TION, in Bankruptcy: a certain percentage or proportionate sum which creditors agree to receive from a bankrupt in lieu of full payment of his debts, and the acceptance of which operates as a discharge to the bankrupt, and reinvests him in his estate: see INSOLVENCY.

COMPOSITION AND RESOLUTION OF FORCES AND MOTIONS, in Mech.: COMPOSITION—the finding of a single force equal to two or more given forces acting in given directions: RESOLUTION—the converse of the above. 1. The fundamental problem in statics is to find the magnitude and direction of the *resultant* of two forces; in other words, to compound them into a single force, which shall be in every respect their equivalent. Intensity and direction being the only elements necessary to entirely describe a force, forces in statics are represented by lines, which are obviously capable of being made to represent them both in magnitude and direction. When two forces act along the same straight line on a particle, it is sufficiently obvious that if they act in the same direction, the resultant will be their *algebraical* sum; if in opposite directions, their *algebraical* difference. This being premised, the relation between two forces acting at the same point, but not in the same line, and their resultant, is set forth in the following theorem, which is known as the *Parallelogram of Forces:* If two forces, P, Q, acting on a particle A, be represented in direction and magnitude by the lines A*p*, A*q*, then the resultant will be represented in direction and magnitude by the diagonal A*r* of the parallelogram described upon A*p*, A*q*. The proof of this depends upon the simple principles, that a force may be supposed to act at any point of its direction, that point being conceived to be rigidly attached to the particle on which the force acts; and what may be accepted as an axiom of universal experience, that when any number of forces are impressed on a particle or body, each exerts itself, as if the others were not acting, to produce its full effect: see any elementary treatise on mechanics. The doctrine of the parallelogram of forces has given rise to much controversy, not as to its truth, but as to its derivation, some appearing to contend that it is directly deducible from the axiom above stated, without the necessity of further reason-



ing.—Knowing how to compound two forces acting at a point, we are able to compound or determine the resultant of any number. If the forces, though in the same plane, do not act at the same point of a body, those of them whose directions meet may be compounded by the preceding rule; if they are parallel, their resultant is a force parallel to them and equal to their algebraical sum, counting those acting in one direction as positive, and in the opposite direction as negative. For the position of the resultant in this case, see PARALLEL FORCES. The singular case is that of equal parallel forces acting in opposite directions. These constitute a couple, and cannot be represented by any single force: see COUPLES.

2. The resolution of forces is the converse problem. To resolve a given force R, whose direction and magnitude is A*r*, into two forces acting in any directions that may be chosen, as AP, AQ, we have only to draw parallels through *r*, which determine the lines A*p*, A*q*, representing the magnitude of the forces required. It is evident that there is an indefinite number of pairs of forces into which A*r* might be resolved, according to the direction in which the new forces are to act. It is usual, however, to resolve a force into forces that are at right angles to each other.

3. The composition of motions is analogous in every way to that of forces; motions are the results of forces, and the analogy might be expected. If a body be actuated simultaneously by two velocities having different directions, it will evidently move in a direction intermediate to the two, and with a velocity which will in some way depend on each of them, and which is called their resultant. The proposition which sets forth how to find the resultant is called the *parallelogram of velocities*. It is: If two velocities, with which a particle is simultaneously impressed, be represented in direction and magnitude by two straight lines drawn from the particle, the resultant velocity of the particle will be represented in direction and magnitude by the diagonal of the parallelogram described on those two straight lines. The proof is very simple. There is no reason why the full effect of both velocities should not be produced, as if the body moved first with one of them, and then with the other in their respective directions. If in one *second* the body moving with the one velocity would reach *p*, and if we suppose it then to move on *pr* for another second, parallel with the other velocity, it would at the end of the second second be at *r*. Hence, under their joint influence, it will be at *r* at the end of one second.

4. The resolution of motions is altogether analogous to that of forces.

COMPOST, n. *kŏm'pŏst*, in *OE.*, COMPOSTURE, *kŏm-pŏs'tūr* [OF. *composte*—from It. *composta*, a mixture; a compound—from L. *compŏsĭtus*, compound—from L. *con*, *posĭtus*, put or placed]: manure (q.v.), consisting of mixtures of substances adapted to the fertilization of the soil, which, being allowed to ferment, and undergo chemical changes for a considerable

time in heaps, become more valuable than they were at first, or ever could have been if applied separately. Compost was formerly made of farm-yard manure, and earth or lime in addition. Road-scrapings, peat-moss, leaves, and clearings of ditches, also formed materials for the purpose. By allowing these to lie for six months in heaps from 3 to 4 ft. in depth, food was prepared for plants. The mass was usually applied to the turnip crop, before artificial manures were known. The use of guano and other light manures has superseded in a great measure the necessity of this laborious process, and compost for turnips or barley is now little used. The wonderful effects that have resulted from the application of small doses of nitrogen and phosphoric acid have impressed farmers in general with the truth that the most energetic elements bear a small proportion in weight to the whole mass of farm-yard dung or compost, and that the mixing of the manures in heaps with earth does not repay the labor expended in the process. More care is now rightly bestowed in preserving manure from washings by rain. Compost formed of leaves, ditch-scourings, road-scrapings, or any earthy matter containing a large percentage of vegetable matter, with the addition of lime, may still be used with benefit for pastures that are deteriorating, or where the soil is stiff. Where moss prevails, lime should enter largely as a component. On the other hand, where the soil is of a strong and clayey nature, earthy substances containing vegetable matter in larger proportions should be used. Vegetable matter has the effect of imparting a softness to the surface that is particularly conducive to the free growth of pastures. Compost designates also a kind of plaster or cement.

COMPOSTEL'LA, Military Order of St. James of: Spanish knightly order. St. James, the elder, was adopted as the patron saint of Spain, after the victory of Clavijo, and his relics were preserved at Compostella (see Santiago de Compostella). The marvels supposed to be performed by these relics drew vast numbers of pilgrims, for whose support hospitals were established by the pious canons of St. Eloy. The vicinity of the Moors having subsequently rendered the highroads unsafe, 13 noblemen united for the protection of the pilgrims, and, in conjunction with the canons, resolved to found an order of the same kind as that of the Hospitallers or Templars. The pope granted his assent in a bull dated 1175, July 5, accompanied with the statutes of the order. Whatever conquests were made from the infidel were declared the property of the order, and a council of 13 knights was vested with authority to elect and depose a grand master. The knights made vows of poverty, obedience, and celibacy, and professed their belief in the immaculate conception. To protect Christians and convert infidels, they avowed as the only object in their wars with the Saracens. In most of the great battles between Christian and Moor the red cross of the order was conspicuous. The conquests of the order itself combined with the grateful munificence

of the nation, speedily increased its wealth and power beyond those of any of the other orders of knighthood. In addition to the three large commanderies of Leon, Castile, and Montalvan, it had nearly 200 minor commanderies, comprising, it is said, more than 200 priories, with many fiefs, cloisters, hospitals, castles, boroughs, two towns, and 178 villages exclusive of its possessions in Portugal. This enormous wealth and power of the order excited the jealousy of the crown, in which, in 1522, the grand-mastership was permanently vested by the pope. Having thus become merely honorary and dependent on the crown, the order rapidly decreased in importance.

COMPOSURE, n. *kŏm-pō'zhûr* [see COMPOSE]: a settled state of the mind; calmness; tranquillity; sedateness; in *OE.*, frame of mind; temperament; agreement.

COMPOTE, n. *kŏm'pōt*, COMPOTES, n. plu. *kŏm'pōtz* [F. *compote*—from OF. *composte*—from L. *composĭta*, a compound]: stewed fruit; a preparation of fruit in syrup. COMPOTIÈRE, n. *kŏng'pōt-ĭ-ĕr'* [F.]: a dish specially adapted for stewed fruit at table.

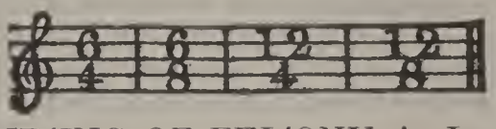
COMPOUND, n. *kŏm'pownd* [L. *compōnĕrĕ*, to set or place together—from *con*, *pōnō*, I set or put: probably confused with L. *con*, *pondus*, a weight, a mass]: a body formed by the union or mixture of two or more substances or parts; in *gram.*, a word composed of two or more words: ADJ. composed of two or more substances; composed of several parts. COMPOUND, v. *kŏm-pownd'*, to mix or unite two or more substances into one body or mass; to unite or combine; to adjust; to discharge by agreement, as a debt by composition; to come to terms of agreement; in *OE.*, to determine. COMPOUND'ING, imp. COMPOUND'ED, pp. COMPOUND'ER, n. one who discharges a debt by certain fixed payments, or by several payments (see INSOLVENCY); one who endeavors to bring parties to terms of agreement; one who mixes ingredients. COMPOUND'ABLE, a. *-ă-bl.* COMPOUND INTEREST: see INTEREST. COMPOUND-RAIL, a rail made of several portions, with a longitudinal joint, avoiding the transverse joint across the rail, whereby the jarring is occasioned, a continuous rail; also applied to several other forms of rails consisting of portions joined together. COMPOUND REST, the tool-carrier of an engine-lathe, moved longitudinally (along the work) by the leading screw, actuated by the feed: and transversely (to or from the work), by its own feed-screw.

COMPOUND, n. *kŏm'pownd* [corrupted from Port. *campania*]: the inclosure that surrounds a house or building.

COM'POUND AN'IMALS: those animals, exclusively of the lowest classes, in which individuals distinct as to many of the powers of life are yet united in some part of their frame, so as to form one living system. Examples are found in many animalcules and zoophytes, also in cestoid worms and ascidian mollusks. The whole living

system in all compound animals appears to originate from a single egg or germ, and each is at first simple; the subsequent multiplication of individuals, having distinct organs, but permanently retaining their connection with the system, has some analogies with some of the modes of true reproduction. Many compound animals exhibit very close relations to other animals which in no degree possess this remarkable character.

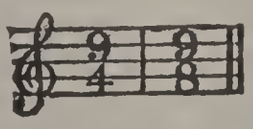
COMPOUND COMMON TIME, in Music: species of measure containing the value of two dotted minims in a bar, or two dotted crotchets; marked thus:



COMPOUND'ING OF FEL'ONY, in Law: the offense of taking value for forbearing to prosecute a felony, and is punishable with fine and imprisonment. Compounding of informations upon penal statutes, and compounding of misdemeanors, are also illegal, unless with leave of court, and are punishable in lighter degree. But in misdemeanors affecting only private (and not public) rights, the court will often permit the defendant to make the prosecutor some pecuniary amends, and thereupon withdraw the prosecution. Accepting a promissory note as consideration for not prosecuting in a case of larceny constitutes the offense. Mere retaking of stolen goods by the owner does not of itself constitute the offense. Advertising a reward for stolen property, coupled with words implying that no questions will be asked, or that no prosecution will be instituted is a common offense.

COMPOUND TONE: (1) A musical tone, the complex of fundamental and overtones; contrasted with a simple or pure tone; (2) An unanalyzed chord: see CHORD. We seldom, if ever, hear a pure or simple tone, *i.e.*, one which is free from overtones. A violin string, *e.g.*, vibrates as a whole, in halves, in thirds, and in subdivision after subdivision of these parts and actually produces as many tones as there are vibrating sections of the string. These blend so that they are spoken of as one tone (named after the pitch of the fundamental, although an overtone may dominate, as in the clarionet) and are ordinarily heard as one tone. The number, intensity and distribution of the overtones in a compound tone give rise to the color, timbre, character, or quality of the tone. When separate tones are heard as one, as in perfect concord, this also is a compound tone.

COMPOUND TRIPLE TIME, in Music: a measure of nine crotchets or quavers in a bar; marked thus:



COMPRADOR, n. *kŏm'pră-dōr'* [Port. and Sp.]: a Chinese head-manager; a steward for household matters; the

agent with whom Europeans negotiate on business matters with the Chinese.

COMPREHEND, v. *kŏm′prĕ-hĕnd′* [L. *comprehen′dĕrĕ*, or *compren′dĕrĕ*, to lay hold of—from *con*, *prehendo*, I seize or grasp; *prehensus*, laid hold of firmly: It. *comprehendere:* F. *comprendre—lit.*, to lay hold of, as with the hands]: to comprise or include; to contain in the mind; to conceive; to understand. COM′PREHEND′ING, imp. COM′PREHEND′ED, pp. COM′PREHEN′SION, n. *-hĕn′shŭn* [F.—L.]: capacity of the mind to understand; power of the understanding to receive ideas. COM′PREHEN′SIBLE, a. *-hĕn′sĭ-bl*, intelligible; that may be comprehended or understood. COM′PREHEN′SIBLY, ad. *-sĭ-blĭ*. COM′PREHEN′SIBLENESS, n. *-sĭ-bl-nĕs*, or COM′PREHEN′SIBIL′ITY, n. *-bĭl′ĭ-tĭ*, capability of being understood. COM′PREHEN′SIVE, a. *-hĕn′sĭv*, having the power to understand many things at once; embracing much; large; full. COM′PREHEN′SIVELY, ad. *-sĭv-lĭ*. COM′PREHEN′SIVENESS, n. the quality of embracing much in a narrow compass.—SYN. of 'comprehend': to comprise; contain; include; embrace; imply; apprehend; conceive; understand; grasp;—of 'comprehensive': extensive; wide; large; full.

COMPRESS, v. *kŏm-prĕs′* [L. *compressus*, pressed together—from *con*, *pressus*, pressed, kept under: It. *compresso*]: to press together; to bring within narrow limits; to squeeze; to crush or force into a smaller bulk. COMPRES′SING, imp. COMPRESSED′, pp. *-prĕst′:* ADJ. in *bot.*, flattened laterally or lengthwise. COMPRES′SION, n. *-prĕsh′ŭn*, the act of forcing into a narrower compass; in *anat.*, pressure upon the brain caused by a severe injury. COMPRES′SIBLE, a. *-prĕs′sĭ-bl*, that may be squeezed into smaller bulk. COMPRES′SIBIL′ITY, n. *-bĭl′ĭ-tĭ*, the quality of yielding to pressure. COMPRES′SIVE, a. *-sĭv*, having the power to compress. COMPRES′SOR, n. *-sẽr*, that which serves to compress. COMPRES′SURE, n. *-prĕsh′ûr*, the act or force of bodies pressing together. COMPRESSION-CASTING, a mode of casting bronzes, etc., in molds of potters' clay under a pressure which causes the metal to flow into the delicate tracery left by the pattern.—SYN. of 'compress': to press; squeeze; crowd; condense.

COMPRESS, n. *kŏm′prĕs* [F. *compresse*, a surgical compress—from OF. *compresser*, to press together (see COMPRESS 1)]: folds of soft linen cloth, used to cover the dressings of wounds, etc., or to keep them in their proper place and defend them from the air.

COMPRESSED AIR: atmospheric air compressed by pumping into a reservoir. It has numerous commercial uses, based on its pressure, elasticity and changes in temperature. Upon compression it heats rapidly, and when expanded it withdraws heat from its surroundings, making them cold, on the same principle involved in making artificial ice. C. A. can be used like steam in the cylinders of motors to deliver power, and some mining locomotives are thus constructed, having the advantage that they are free

from smoke such as would be produced by steam locomotives. The extreme elasticity of the air permits great compression, and it has been stored at a pressure of 4,000 pounds to the square inch. Such pressure would be useful only in a dynamite gun or other unusual mechanism. For ordinary purposes it is common to deliver the C. A. from the pressure tank which may sustain 1,000 to 2,000 pounds pressure, into a reducing cylinder, from which it can be used at a pressure of 100 to 150 pounds.

Heat is commonly applied before the final exhaustion in order to expand the air as much as possible, thus causing it to deliver more pressure than it would if cold. Storage tanks of C. A. have been carried by street cars for operating the motors. A car line about two miles in length can be operated in this manner.

C. A. is very largely used in mines for operating the rock drills and other machinery. It is preferred to steam or electricity because its operation continually introduces fresh air into the mine. The customary plan is to place an air-compressor in a plant at the surface, and connect by flexible pipes with the rock-drills. In some instances the C. A. is carried several miles through pipes with slight loss by leakage.

In tunneling operations under rivers, or along a shore where water is likely to flow in, the workmen are protected by air-locks, within which C. A. is maintained, a sufficient pressure being applied to keep out the water should it break in on them unexpectedly. Working in such C. A. is trying and dangerous, producing what is known as caisson disease or the 'bends,' which is sometimes fatal.

In some large machine shops portable tools, as caulkers or riveters, are operated by C. A. delivered through flexible pipes. If the pressure is not great, these pipes may be simply stout hose protected by an outside spiral winding of wire. All the tools or machines in a shop may be equipped so as to operate individually by such C. A. power. Small electric motors, however, are generally preferred for such purposes.

Pneumatic carrier systems depend wholly on C. A. that is driven through tubes. The pneumatic tubes established in several large cities for carrying United States mail are supplied with a constant pressure or current of air in one direction, which transmits the carriers that are introduced in the tube. These carriers are hollow cylinders closely fitting to the bore of the tube. See CARRIER and PNEUMATIC.

C. A. is used for springs, as in bicycle tires, and in printing presses to reverse the type-beds. It is also used in various spraying operations, as for putting on paint, in blowing large fog-horns, supplying air-guns, etc. See AIR COMPRESSION and REFRIGERATION.

COMPRESSED'-AIR BATH: large chamber in which patients sit under increased atmospheric pressure for a greater or shorter period. The apparatus, as now used, is the invention of M. Emile Laburié of Paris. The bath is a

chamber 9 ft. in diameter and 12 ft. high; it is constructed of iron plates riveted together like those of a boiler of a steam-engine, so as to be perfectly air-tight; it is provided with two close-fitting iron doors, which can be opened without affecting the pressure of the air within the chamber; the interior is lined with wood, and furnished with seats; a steam-engine of seven horse-power works a pair of large air-pumps, communicating indirectly with the chamber by a pipe that opens by means of numerous small holes in the bottom of the floor, so that the air enters imperceptibly into the chamber; from the roof, a pipe similarly arranged allows the breathed air to escape. Each of these tubes is supplied with a screw valve, by means of which the inlet and exit of the air are regulated. Two barometers hang on the walls of the chamber, to show the rate of inincrease and decrease of pressure. The pressure is raised at the rate of 1 lb. every 4 minutes, and the lowering takes place at the same rate. The pressure is usually raised to 7 lbs. per sq. inch, in addition to the usual pressure of the atmosphere. The period generally prescribed for remaining in the bath is 2 hours.

The diseases in which the C. B. is said to be most efficient are phthisis, asthma, and chronic bronchitis. The effects are attributed to two causes: 1. A greater quantity of air, and consequently of oxygen, is inhaled in a given time; and not only so, but the amount absorbed is increased in proportion to the pressure of the gas against the walls of the air vesicles. The increased absorption of oxygen and excretion of carbonic acid enables the lungs to perform their functions more efficiently, and thereby removes any congestion existing in these organs. 2. The increased mechanical pressure of the air upon the mucous membranes, when in a state of chronic congestion, has a bracing effect, and imparts renewed vigor to the entire structure of the lungs and bronchi. At Ben-Rhydding (q.v.) in Yorkshire, England, the C. B. is used in cases of the kind above named, with the usual appliances of the water-cure.

COMPRESSED'-AIR ENGINE: one mode of the application of air, in the manner of high-pressure steam, as a motive power. Another mode is by the CALORIC ENGINE (q.v.). Although compressed air has been used for working small engines in confined situations, such as tunnels (q.v.), it is not likely ever to come into extensive use, in view of the great waste of power attending it. This waste arises from two causes—first, the friction due to forcing the compressed air along a great length of pipe; and secondly, the loss from the dissipation of the great heat which results from its compression. If, say, 100 cubic ft. of air is compressed into 1 cubic ft., it will become very hot, and although it is very easy to keep in the air, it is impossible to keep in the heat. In spite of every precaution, the heat will find its way through the vessel in which the air is confined, and through the pipes in which it is being transmitted, and this is equivalent to a portion of the air itself leaking out, because, when the air is permitted to

expand in working the engine, it will not attain its original bulk of 100 cubic ft. The greater the original compression of the air, the higher its temperature will rise; and as this caloric, which cannot be kept from escaping, is practically a part of the bulk of the air, it follows that the loss of power from this cause will increase with the pressure or tension of the air. Even were it possible to prevent the escape of the heat, by covering the vessels and pipes with some non-conducting substance, it would not be practicable to use the hot air in the same way as steam is used, because the lubricating material necessary to keep the piston and slide-valves from 'tearing' would be decomposed by the high temperature. In steam-engines there is always a small quantity of water in the cylinders and slide-valves, arising from the condensation of a portion of the steam, and this suffices to lubricate the piston and valves. It is well known that when steam is *superheated* so highly as to prevent a slight condensation in the cylinder and slide-valves, they are very rapidly destroyed. Indeed, no fluid can be economically used for transmitting power for any great distance. Steam is even more wasteful than compressed air, because in long pipes it condenses into water. Water itself in passing through long pipes loses much of its force from friction, unless the pipes are of very large size; and in applying it to Hydraulic Cranes (q.v.), where the weight to be raised varies, great waste of power arises from the fact that the cylinder in which the ram works has to be filled every time the crane is worked with water at the full pressure of 600 or 700 lbs. to the sq. inch, even when a pressure one tenth of that amount would suffice to raise the weight: in short, the power actually used in working a hydraulic crane is always the maximum, even when the weight to be raised is a minimum. It *uses* as much power to lift a hundred-weight as to lift a ton. The extreme handiness and other practical advantages possessed by the hydraulic cranes leave a large balance in their favor, notwithstanding their waste of power.

In boring the Mont Cenis Tunnel (see TUNNEL), air was compressed at the mouth of the tunnel by the abundant water-power easily obtainable there, and forced along to the working face through small iron pipes, for working the boring-machines. The tunnel through the Hoosac Mountain, Mass., also was bored by compressed air working the rock-drills. A plan has been proposed for using ordinary steam-boilers and engines close to the working face in the tunnel, and drawing out the smoke and vitiated air through a wooden trunk. Another fairly successful application of compressed-air engines has been in the working of coal-cutting machines. Of these machines, Firth's in England, Gladhill's in Scotland, and Brown's in America, have been in practical operation for several years; but they can as yet be economically worked only under exceptionally favorable circumstances. Experiments have been recently tried to propel tramway cars with compressed air; in this department there may yet be found successful

application of this power. Engines for the compression of air are used in making ice. See REFRIGERATING MACHINES.

COMPRESSIBIL'ITY: that property of bodies by which they admit of being forced or pressed into less space than they formerly occupied. The particles composing bodies are in all cases at greater or less distances from one another; and whatever brings the particles closer together diminishes the volume or bulk of the body. This may be effected by various agencies, as, e. g., by the withdrawal of heat (q.v.); but the effect is called compression only when it is caused by mechanical force, as by pressure or percussion. All bodies are compressible, but in different degrees. Many solids, especially those of a compact structure, have this property in only slight degree. It was believed at one time that liquids were incompressible; more accurate experiments have proved this an error; water, for instance, subjected to a pressure of 15,000 lbs. on the sq. inch, loses $\frac{1}{20}$ of its volume. Gases, on the other hand, are strikingly compressible; by means of a common condensing syringe, a number of cubic inches of air can be forced into the space of one inch. Compression is in almost every instance accompanied by an evolution of heat. When a piston, having a piece of German tinder attached to the bottom, is forced rapidly to the bottom of a shut condensing syringe, and rapidly withdrawn, the tinder is found ignited.

In a restricted sense, those gases are said to be compressible which, under great pressure, become liquid. This is the case with carbonic-acid gas, chlorine, sulphurous acid gas, and others. Atmospheric air and its components have hitherto resisted all attempts to liquefy them; though it is believed that only a sufficient degree of pressure and cold is necessary to make any gas liquid. Carbonic acid and some other gases are liquefied in small quantities by inclosing the ingredients necessary for generating the gas in a strong glass tube, keeping them separate till the tube is hermetically sealed.

COMPRISE, v. *kōm'prīz'* [F. *compris*, comprised, included—from F. *comprendre*—from L. *comprehen'dĕrĕ*, to comprise, to include]: to include within itself; to comprehend; to contain or embrace. COMPRI'SING, imp. COMPRISED', pp. *-prīzd.* COMPRI'SAL, n. *-prī'zăl*, the act of comprising.—SYN. of 'comprise': to contain; comprehend; include; embrace; involve; imply; encircle; inclose.

COMPROMISE, n. *kŏm'prō-mīz* [F. *compromis*, agreement, treaty, compromise—from L. *con*, *promissum*, a promise]: an agreement between persons having a dispute, to settle their differences by mutual concessions; an arrangement of differences in a dispute. V. to arrange and settle differences by mutual agreement; to agree; to pledge or engage; to put to hazard by some previous act not to be recalled, as to *compromise* the honor of a nation. COM'PRO-

MISING, imp. COM'PROMISED, pp. *-mīzd.* COM'PROMISER, n. *-zĕr*, one who.

COMPROMISE MEASURES OF 1850, or OMNIBUS BILL: series of eight resolutions presented in the U. S. Senate by Henry Clay (q.v.) 1850, Jan. 29, for the purpose of effecting an amicable settlement of the slavery controversy, which had been bitterly revived by the action of the citizens of California and New Mexico in forming a state constitution and govt. preparatory to seeking admission into the Union. Pres. Taylor, in his inaugural message five days before, had counselled congress to 'abstain from the introduction of those exciting topics of a sectional character which had produced painful apprehensions in the public mind,' and various propositions had been introduced in both houses in relation to the govt. of the newly acquired territory involving the question of slavery. At this juncture Mr. Clay declared (1) that California, with suitable boundaries, ought to be admitted as a state without restriction in respect to slavery; (2) that as slavery was not likely to be introduced into any of the territory acquired from Mexico, appropriate govts. ought to be established in all the territory not assigned to the state of California, without restriction as to slavery; (3) that the w. boundary of Texas should be fixed so as not to include any portion of New Mexico; (4) that the United States should pay the debt of Texas, contracted prior to annexation, and for which the duties on imports were pledged, not exceeding (a sum to be ascertained), on condition that the duties be thereafter payable to the United States, and that Texas relinquish all claim to any part of New Mexico; (5) that it was inexpedient to abolish slavery in the Dist. of Columbia, while it existed in the state of Maryland, without consent of the people of that state and of the dist., and without just compensation of the owners of the slaves; (6) that it was inexpedient to prohibit the slave trade within the dist.; (7) that more effectual provision ought to be made for the restitution of fugitive slaves; and (8) that congress had no power to prohibit the trade in slaves between the slave-holding states. Mr. Clay's resolutions were opposed by southern senators as making no concession to the south—as being no compromise at all; and they strongly objected to the admission of California, embracing all our possessions on the Pacific coast, with a provision prohibiting slavery. Mr. Calhoun said the Union was in danger because of the discontent at the south occasioned by the long-continued agitation of the slave question in the north, and the exclusion of the south from all the n.w. region by ordinance 1787, and from all the La. territory n. of 36° 30′ except the state of Mo. by the Mo. compromise, and that the north was then endeavoring to appropriate the territory recently acquired from Mexico, adding 526,078 m. to the territory from which the south was, if possible, to be excluded. Senators Webster and Seward supported Mr. Clay's resolution. On 1850, Apr. 17, a committee of 13, a majority from the slave states, was appointed, with Mr. Clay as chairman, to con-

sider further compromise measures proposed by Senator Bell (Tenn.), and it reported May 8 what has obtained the name of 'omnibus bill' from its numerous propositions. The bill was debated till late in July, and the other parts having been successively dropped by amendments, it passed the senate only as a bill to provide for the territorial govt. of Utah, and so also passed the house. Subsequently, however, the other portions of the bill were passed in separate bills. The 'omnibus' bill provided in brief (1) that the admission of any new state or states formed out of Texas should be postponed till they should present themselves to be received into the Union, when it would be the duty of congress fairly and faithfully to execute the compact with Texas, by admitting such new state or states; (2) the admission, forthwith, of California into the Union, with the boundaries she had proposed; (3) the establishment of territorial govts. without the Wilmot proviso (see WILMOT, DAVID), for New Mexico and Utah, embracing all the territory acquired from Mexico not in the boundaries of California; (4) the establishment of the w. and n. boundary of Texas, and the exclusion from her jurisdiction of all New Mexico, with a grant to Texas of a pecuniary equivalent; (5) more effectual enactments of law to secure the prompt delivery of fugitive slaves escaping into the free states; and (6) slavery not to be abolished in the Dist. of Columbia, but the slave trade therein to be prohibited under a heavy penalty. All the measures for compromise on the slavery question proved to be attempts at achieving the impossible.

COMPT, n. *kownt* [F. *compte*, account, calculation, reckoning—from mid. L. *computus*, account, calculation—from L. *computāre*, to reckon, to compute]: in *OE.*, computation; reckoning. COMPTROL, v. *kŏn-trōl'* [mid. L. *computus rotŭlātor*, keeper of accounts: OF. *contre-rolle*, the copy of a roll of accounts]: to oversee and regulate the accounts of; to superintend and regulate the business of an office or department. COMP'TROL'LING, imp. COMPTROLLED, pp. *kŏn-trōld'*. COMPTROLLER, n. *kŏn-trōl'lĕr*, one who superintends and regulates; a superior; a director. COMPTROL'LERSHIP, n. the office or situation of a comptroller; superintendence: see CONTROL.

COMPTROL, v., and COMPTROLLER, n.: see under COMPT.

COMPULSION, n. *kŏm-pŭl'shŭn* [L. *compulsus*, driven together—from *con*, *pulsus*, driven (see COMPEL)]: the act of driving or urging by some kind of force; constraint of will or action; the state of being compelled: see DURESS. COMPUL'SIVE, a. *-sĭv*, able to compel; having power to compel or constrain by force. COMPUL'SIVELY, ad. *-lĭ*. COMPUL'SIVENESS, n. COMPUL'SORY, a. *-sĕr-ĭ*, not of choice; not voluntary; having the power to compel. COMPUL'SORILY, ad. *-lĭ*, in a violent or forcible manner by violence. COMPULSATORY, a. *kŏm-pŭl'sā-tĕr-ĭ*, in *OE.*, having the power of compelling; not of choice but by constraint.—SYN. of 'compulsion': constraint; violence; necessity; urgency.

COMPUNCTION, n. *kŏm-pŭngk′shŭn* [OF. *compunction*, F. *componction*, compunction, remorse—from L. *compunc′-tĭōnĕm*, a pricking—from *con*, *punctus*, pricked or stung: It. *compunzione—lit.*, the power of pricking or stinging]: grief, anguish, or remorse from a consciousness of guilt; the sting of conscience; repentance. COMPUNC′TIONLESS, a. COMPUNC′TIVE, a. *-tĭv*, causing remorse. COMPUNC′-TIOUS, a. *-shŭs*, repentant; full of remorse.—SYN. of 'compunction': remorse; repentance; penitence; contrition; regret; grief.

COMPURGATION, n. *kŏm′pėr-gā′shŭn* [L. *compurgā-tĭōnem*, a purifying completely—from *con*, *purgo*, I make clean]: the practice of confirming any man's veracity by the testimony of another. COM′PURGA′TOR, n. *-tėr*, one who bears testimony to the veracity of another. COMPUR-GATORIAL, a. *kŏm-pėr′gă-tō′rĭ-ăl*, of or relating to compurgation. Compurgators were 12 persons whom the law of our Saxon ancestors permitted the accused to call in proof of his innocence, and who joined their oaths to his. They were persons taken from the neighborhood, or otherwise known to the accused. It was rather in the character of jurymen than of witnesses that the compurgators acted, for what they swore to was not their knowledge, but their belief, and the institution belonged to a time when what has since been spoken of as the Saxon jury was taken from the persons in the neighborhood best acquainted with the matter to be investigated, and when they performed the combined functions of jurors, witnesses, and judges. The system of compurgation was adopted even in civil actions for debt, and the ceremony of what was called canonical purgation of clerks-convict was not abolished in England till 18 Eliz. c. 7.

COMPUTE, v. *kŏm-pūt′* [F. *comput*, computation—from L. *computārĕ*, to sum up, to reckon—from *con*, *putārĕ*, to think or reckon: It. *computare:* F. *compter*]: to sum up or reckon; to number; to throw together several sums or particulars in order to ascertain their collective value; to estimate; to calculate. COMPU′TING, imp.: ADJ. calculating; reckoning. COMPU′TED, pp. COMPU′TER, n. one who. COMPU′TABLE, a. *-tă-bl*, that can be numbered or reckoned. COM′PUTA′TION, n. *-tā′shŭn*, the act of computing or numbering; the process by which the sum, quantity, or result of any number of particulars may be ascertained; the sum, quantity, or result thus ascertained. COMPUTATION OF TIME: see DAY: HOROLOGY.—SYN. of 'compute': to calculate; reckon; count; estimate; enumerate; rate; number.

COMRADE, n. *kŏm′rād* [F. *camarade*, a company that belongs to one chamber, a companion—from Sp. *camarada*, one who shares the same chamber, a comrade: comp. Gael. *comaradh*, booty; *còmhnadh*, help, assistance—*lit.*, one who renders help or assistance, a chamber fellow]: a mate; an intimate companion; an associate in occupation.—SYN.: companion; associate; colleague; partner; mate.

COMRIE, *kŭm'rė:* village and parish in the middle of Perthshire, Scotland, on the Earn, a little e. of Loch Earn, 20 m. w. of Perth. It lies amid the very picturesque scenery of the clay-slate band of Scotland, and is noted for frequent slight shocks of earthquakes. It has woolen and cotton weaving, and distilleries. Pop. about 1,000.

COMSTOCK, *kŭm'stŏk,* Anna (Botsford), American natural history scientist, artist and engraver: b. Otto, N. Y., 1854, Sept. 1. After graduation from Chamberlain Institute, Randolph, N. Y., in 1873, and from Cornell University in 1878, she studied art at the Cooper Union, New York city, and under John P. Davis. In 1899 she was appointed assistant professor of Nature Study in Cornell University extension work; and 1899-1900 was lecturer in Leland Stanford Junr. University extension work. She was awarded the bronze medal for wood engraving at the Pan-American Exposition of 1901. She is the author of *Problems of the Six-Footed; How to Keep Bees* (1904).

COMSTOCK, Anthony, American reformer: b. New Canaan, Conn., 1844, March 7. In 1863 he enlisted in the 17th Connecticut regiment, served under Gen. Gilmore, and was mustered out in 1865, July. In 1873, March, he became secretary and special agent of the New York Society for the Suppression of Vice, and has completely identified himself with its work. It is said that largely through his special efforts 2,500 criminals have been brought to justice, and over 90 tons of indecent literature and pictures have been seized and destroyed. He has written: *Frauds Exposed*; *How the People are Deceived.... and Youth Corrupted* (1880), an exposure of various schemes operated through the mails; *Traps for the Young* (1883); *Gambling Outrages: or Improving the Breed of Horses at the Expense of the Public Morals* (1887), and minor tracts for the furtherance of his work.

COMSTOCK, Cyrus Ballou, American soldier: b. West Wrentham, Mass., 1831, Feb. 3. He graduated at West Point 1855, was chief engineer of the Army of the Potomac 1862-3, and attained the brevet rank of major-general of volunteers 1865, March 26, having been successively promoted for gallant, faithful, and meritorious services. He was later president of the Mississippi River Commission, and a member of the permanent board of engineers for fortifications. He was retired in 1895 as brigadier-general in the regular army. He wrote: *Notes on European Surveys* (1876); *Survey of the Northwestern Lakes* (1877); *Primary Triangulation, United States Lake Survey* (1882).

COMSTOCK, George Cary, American astronomer: b. Madison, Wis., 1855, Feb. 12. He graduated at the University of Michigan 1877 and from the law department of the University of Wisconsin 1883. He practised law for a time, but later devoted himself entirely to astronomy, and is now professor of that subject and director of the Washburn Observatory in the University of Wisconsin. He is a member of the National Academy of Sciences.

He has written: *Method of Least Squares* (1890); *Text-book of Astronomy* (1901); *Text-book of Field Astronomy for Engineers* (1902).

COMSTOCK, Harriet Theresa (Smith), American author: b. Nichols, N. Y., 1860. She was educated in public schools and in the academy at Plainfield, N. J. She married Mr. Philip Comstock in 1885. Since 1895 she has become known as a prolific writer of juvenile stories, and is author of *Molly, the Drummer Boy* (1900); *Cedric the Saxon* (1901); *A Boy of a Thousand Years Ago* (1902); *A Little Dusky Hero* (1902); *Tower or Throne* (1902); *When the British Came*; *Then Marched the Brave*; etc.

COMSTOCK, John Henry, American entomologist: b. Janesville, Wis., 1849, Feb. 24. He graduated at Cornell University 1874, was United States entomologist at Washington, D. C., 1879-81, and since that date has been instructor and professor of entomology and general invertebrate zoology at Cornell. He has been a constant contributor to the literature of his subject, the following being the more important of his works in book form: *Report on Cotton Insects* (1879); *Introduction to Entomology* (1888); *Manual for the Study of Insects; Insect Life* (new ed. 1901); *Elements of Insect Anatomy* (3d ed. 1903) (with Kellogg); etc.

COMSTOCK, John Lee, American writer on physics: b. Lyme, Conn., 1789; d. Hartford, Conn., 1858, Nov. 21. He received a common-school education, studied medicine, and during the War of 1812 was assistant surgeon at Fort Trumbull, Conn., and on the northern frontier. He settled in Hartford, Conn., practised medicine until 1830, when he became an author by profession, and attained remarkable success in the compilation of text-books for educational purposes. His *Introduction to Mineralogy* (1832) was used at West Point; of the *Elements of Chemistry* over 250,000 copies were sold; while the *System of Natural Philosophy* (1831) had a sale of over 900,000 copies (94th ed. N. Y. 1847), and was translated into the chief European languages. Others were: *History of the Greek Revolution* (1828); *History of the Precious Metals* (1849); *Natural History of Quadrupeds* (1829); *Grammar of Chemistry* (1825); *Introduction to Botany* (3d ed. 1835).

COMSTOCK, Theodore Bryant, American geologist: b. Cuyahoga Falls, Ohio, 1849, July 27. He graduated at Pennsylvania State College 1868, and at Cornell 1870, where he was professor of economic geology 1875-9. He accompanied Hartt's expedition to Brazil 1870, and Jones' Wyoming expedition 1873. He was professor of mining engineering and physics in the University of Illinois 1885-9, and assistant State geologist of Arkansas 1887-8, and of Texas 1889-91. He founded the Arizona School of Mines, was its director 1891-5, and president of the University of Arizona 1893-5. He has been manager, engineer, and consulting expert to many mining companies and syndicates, both American and foreign. He has pub-

lished: *Outline of General Geology* (1878); *Classification of Rocks* (1877); *Notes on the Geology of the San Juan Country* (1882); *The Geology and Vein Structure of Southwestern Colorado* (1886); the last two in the *Transactions* of the American Institute of Mining Engineers; and numerous papers in the *American Journal of Science*; *American Naturalist*; and *Engineering and Mining Journal.*

COMSTOCK LODE, a remarkable vein carrying silver sulphides with some native silver and considerable native gold, near Virginia City, Nev. The wide vein is a faulted fissure following the contact of a basaltic dike with the andesite country rock, the latter of Tertiary Age. The gangue is mainly quartz. The ores are of recent origin, and the waters ascending along the fissure are hot, making mining costly. Some wonderfully rich ore bodies, 'bonanzas,' were found in certain of the mines along the lode, and the history of its discovery, the great mining speculations based on it, and the final abandonment of nearly all the mines, reads like a romance. At present the deepest shaft on the lode is being reopened. The total yield of the lode from its discovery in 1859 up to July 1880 was over $306,000,000.

COMTE, *kōngt*, AUGUSTE: founder of the 'Positive Philosophy': 1795 (or 97)-1857, Sep.; b. Montpellier, France. He studied at Paris; and at an early period, it is said, attracted the attention of his companions by the audacity and novelty of his speculations, maintaining that the time was come when philosophy must undergo another great change, as in the days of Bacon. G. H. Lewes, who regarded Comte as the Bacon of the 19th c., only much greater, informs us that Comte was but *fourteen* years old when 'the reforming spirit awoke' in him (see *Exposition of the Principles of the Positive Philosophy*, by G. H. Lewes, Bohn, London, 1853). Shortly after this, and while still laboring under the excitement of his new convictions he became acquainted with St. Simon; entered enthusiastically into his theories, which had not a little in common with his own, and which had in addition this advantage, that they were the results of matured thinking (St. Simon being then between 50 and 60 years of age): and in 1820 was appointed by the master himself to prepare an exposition of the *Politique Positive* of the St. Simonian Society. The work did not satisfy St. Simon, who deplored the absence of the 'religious and sentimental aspects' of his system. In 1825, on the death of St. Simon, Comte broke off altogether from his *confrères*, and in after-years was accustomed to speak slightingly of his old master's abilities. In 1826 Comte was attacked by a cerebral disorder, brought on by 'overwork and heart-anxieties'. He recovered, however, and in 1832 was appointed prof. of mathematics at the *École Polytechnique*, which situation he was forced to resign, 1852, on account of differences with his colleagues. He died at Paris.

Comte's works are—*Cours de Philosophie Positive* (6 vols., Par. 1830-42; freely translated into English, and

condensed by Harriet Martineau, 2 vols. 1853), *Traité Elémentaire Géométrie Analytique* (1843), *Traité d' Astronomie Populaire* (1845), *Discours sur l'Ensemble du Positivisme* (1848), *Système de Politique Positive* (4 vols. 1851-54; Eng. trans. 1875 *et seq.*, Longmans), and *Catéchisme Positiviste; ou Sommaire Exposition de la Religion Universelle* (1 vol., Par. 1852). For a full account of Comte's system, see POSITIVISM. Comte's fundamental doctrine is this: The race (like the individual) necessarily passes through three intellectual stages—1. The *theological*, in which an origin is sought for all phenomena in the wills of beings like ourselves: first, in souls dwelling *in* the particular thing (*fetichism*); second, in beings behind the phenomena (*polytheism*); third, in one supernatural soul (*monotheism*). 2. The *metaphysical*, in which the *sensuously* supernatural is set aside as incredible, and an effort is made to demonstrate the existence of 'abstract forces or entities supposed to inhere in various substances, and capable of engendering phenomena.' 3. The *positive*, in which the mind affirms the futility both of theological and of metaphysical inquiries, abandons all vain search after the *causes* and *essences* of things, 'restricts itself to the observation and classification of phenomena, and to the discovery of the invariable relations of succession and similitude which things bear to each other; in a word, to the discovery of the *laws* of phenomena.' All sciences, as well as society and the individual man, go through these three stages. Comte classifies the sciences in the order of increasing concreteness, from Mathematics to Sociology. This classification, Comte holds, represents the historical order in which the sciences have passed into the *positive* stage. Mathematics, the type of all science, and the physical sciences have already reached the *positive* stage and it remains to organize the whole of social theory and practice by the observation and correlation of social phenomena, and the determination of the laws of social progress. Religion, art, morals, industry, science, Comte regards purely as aspects of social life. The new and all-comprehending synthesis is to be the task of Sociology, of which Comte regards himself as the founder; the law of the three stages is its fundamental principle. Corresponding to the three intellectual stages are three social stages:—militaristic, juristic, and industrial. Theology and metaphysics are alleged to be in their dotage, and all the anarchy of modern life to arise from the presence of these disturbing elements. To deliver us from their hurtful influence, Comte employs the principles of positivism to organize a new social doctrine, which shall embrace the entire wants of man as an intellectual and emotional being. Comte thus aims at being the founder not only of a new philosophy, but also of a new religion, and has even assumed the title of *Fondateur de la Religion de l'Humanité*. He views Humanity, past, present, and future, as continuous in its life. The dead work and live in the living. This life of humanity in its continuity in time

and its solidarity in the present is the supreme object of worship and all the great dead are Saints in its calendar. Comte gave elaborate details for the organization of his religion. In the *positive* morals and politics *love*, or *altruism* will be the principle; *order*, involving differentiation of function, the basis; and *progress*, the goal. His views, which certainly are original and comprehensive, have excited much attention among thinkers in France, England, and Germany, and obtained not a few ardent adherents; though the system finds favor with only a special class of minds, and is not known to be gaining acceptance largely in recent years.

COMTE, François Charles Louis, *fräṅ-swä shärl loo-ē kônt*, French writer on politics and jurisprudence: b. St. Enimie, department of Lozère, 1782, d. 1837. In 1814 he united with Dunoyer in starting a journal, called *Le Censeur*, in which the adherents, both of Napoleon and the Bourbons, were roughly handled. On the second restoration of the Bourbons judicial proceedings were taken against the *Censeur*, and the editors were fined and imprisoned. In 1819 Comte converted his journal into a daily newspaper, under the name of *Le Censeur Européen*, and shortly after amalgamated it with the *Courrier Français*. In 1821 a new prosecution condemned him to two months' imprisonment and a fine of 2,000 francs. He then went to Geneva, where he obtained a chair of public law, and taught with great success till the Helvetic Diet, in consequence of diplomatic complaints, found it necessary to refuse him an asylum. The work by which his name will be best known to posterity is his *Traite de Législation Criminelle* (1827).

COMTISM, n. *kŏm'tĭzm* [F. *Comte*, Eng. suf. *-ĭsm*]: the philosophy of M. Auguste Comte.

COMUS, *kō'mus*, in Greek Mythology: the god of revelry, of rejoicings, and feastings. He presided over dances and debaucheries, and was represented by Philostratus as being young and fair, with a face reddened by too frequent drinking, carrying in his hands a burning flambeau held down to the ground, seeming to burn his legs with it. He was crowned with garlands of flowers amid feasting and dissipating pleasures. According to Milton he was a son of Bacchus and Circe, was educated by his mother, and became a sorcerer.

CON, *kŏn* [L. *cum*, with]: a prefix meaning, together, with: *con* assumes the various forms of *co*, *cog*, *col*, *com*, *cor*, according to the first letter of the other part of the word of which it forms the prefix: see Co.

CON, prep. *kŏn* [It.]: with; at; from. Con amore, *ă-mō'rā*, from love to the work: enthusiastically. Con anima, *ăn'ĭ-mă*, with airiness and animation.

CON, *kŏn* [a shortened form of the L. *contra*, against]: the negative side of a question; against; used in the phrase Pro and con, *for* and *against*.

CON, v. *kŏn* [AS. *cunnan;* Goth. *kunnan,* to know: Sw. *kunna,* to be able]: to fix in the mind by frequent repetition; to study. CON'NING, imp. CONNED, pp. *kŏnd.* To CON THANKS, to give thanks. To CON OVER, to learn by heart. To CON OUT, to obtain by talk and cunning. To CON ANSWER, to study an answer.

CONANT, ALBAN JASPER, American artist: b. Chelsea, Vt., 1821, Sept. 24. He settled in St. Louis in 1857, and during the Civil War visited Washington, and painted portraits of President Lincoln, Secretary Stanton, and Attorney-General Bates. He was a curator in the University of Missouri for eight years, and made valuable studies of the archæology and antiquities of the Mississippi Valley. In 1880 he was appointed Délégué Correspondant de l'Institution Ethnographique of Paris. He has published: *Footprints of Vanished Races in the Mississippi Valley* (1879); *The Archæology of the Missouri Valley; My Acquaintance With Abraham Lincoln,* etc.

CONANT, CHARLES ARTHUR, American economic writer: b. Winchester, Mass., 1861, July 2. He was for some years after 1880 a journalist in Boston, and from 1889–1901 was the Washington correspondent of the *New York Journal of Commerce.* He was special commissioner of the War Department in the Philippines 1901; and since 1902 has been treasurer of the Morton Trust Company of New York. He has published: *A History of Modern Banks of Issue; The United States in the Orient; the Nature of the Economic Problem* (1900); *Alexander Hamilton; Securities as Payment; The Law of the Value of Money; Wall Street and the Country* (1904).

CONANT, HANNAH O'BRIEN CHAPLIN, American author: b. Danvers, Mass., 1809; d. Brooklyn, N. Y., 1865, Feb. 18. In 1830 she married Thomas Jefferson Conant (q v.) She was a woman of versatile talent, having an excellent knowledge of Oriental tongues, which enabled her to share in the biblical studies of her husband. She frequently contributed to the literary and religious periodicals of the day, and in 1838 became editor of the *Mothers' Monthly Journal* at Utica, N. Y. She published: *Lea: or the Baptism in the Jordan, by G. F. A. Strauss,* (1844); *First Epistle of John Practically Explained, by A. Neander* (1852); *The New England Theocracy, by H. F. Uhden* (1859), all translations from the German; *The Earnest Man: Sketch of the Character and Labors of Dr. A. Judson* (1855); *The English Bible: Popular History of the Translation of the Holy Scriptures into the English Tongue* (1856; English ed. 1859; new ed. 1881).

CONANT, THOMAS, Canadian descriptive writer: b. Oshawa, Ont., 1842, April 15; d. there 1905, March 14. He was educated in the public schools and at Eddy stone Seminary in Geneva, N. Y., and achieved distinction with brilliant sketches of scenery and articles on Canadian and other subjects. In 1896 he visited Australia India, and the Orient.

CONANT, Thomas Jefferson, American biblical scholar: b. Brandon, Vt., 1802, Dec. 13; d. Brooklyn, N. Y., 1891, April 30. He was graduated from Middlebury College in 1823, and between 1825 and 1857 taught the classics and biblical literature in Columbia College, Waterville (now Colby) College, Maine, Madison, now Colgate, University, Hamilton, N. Y., and Rochester Theological Seminary. Taking up the studies that soon gave him a wide reputation, he was appointed by the American Bible Union one of a committee to prepare a revision of the English version of the New Testament. He was also a member of the American committee on the English revision of the Old Testament, and his versions were highly esteemed and constantly used by the English revisers. His numerous publications include translations of the 11th and 17th editions of Gesenius' *Hebrew Grammar; Job; Revised Version, and Notes* (1856); *Matthew, Revised Version* (1860); *Baptizein, Its Meaning and Use* (1860); *Genesis, Revised Version* (1868; 1873); *The New Testament; Common Version Revised* (1871); *Psalms, Revised* (1871); *Proverbs, Revised* (1872); *Greek Text of the Apocalypse, as edited by Erasmus* (1873); *Prophecies of Isaiah, Chapters* 1–12 (1874); and *Historical Books of the Old Testament, Joshua to* 2 *Kings* (1884).

CONATION, n. *kŏn-ā-shŭn* [L. *conatio*—from *conor*, I attempt, I try]: the faculty of voluntary agency. Conative, adj. *gram.*, indicating endeavor.

CONATION: the active element in consciousness, coordinate with cognition and affection in the triparte division of mental life. Whether it is an element or not, it represents the striving, the active tendency of consciousness. Among the conative processes we count impulse, effort, desire, choice. An effort is made to substitute conation as a technical designation of what is generally called will in order to avoid some of the accretions and implications which attach to the term will. Conation was first used by Hamilton to denote desire and volition: see *Conation* in *Dict. of Phil. and Psych.* (Baldwin).

CONATY, Thomas James, American Roman Catholic prelate: b. Ireland, 1847, Aug. 1. In 1850 he came with his parents to America, the family settling in Taunton, Mass., and in the district schools of that city he received his primary education. He entered the College of Saint Sulpice, Montreal, in 1863, completed his humanities in 1867, and spent the following two years at Holy Cross College, Worcester, Mass., being graduated in 1869. His ecclesiastical course was pursued at the Seminary of Saint Sulpice, Montreal, where he was ordained priest 1872, Dec. 21. First named assistant at Saint John's church, Worcester, Mass., and afterward chosen pastor of the Church of the Sacred Heart in that city, Father Conaty was actively interested in the advancement of Catholic education. He was likewise an ardent promoter of the temperance cause, being first president of the Springfield

Diocesan Temperance Union, and in 1887, national president of the Catholic Abstinence Union of America. Father Conaty was also prominent in establishing the Catholic Summer School in 1892—the same now flourishing at Plattsburg, N. Y.—being its president from 1893 to 1897. In 1889 Georgetown University conferred upon him the title of D.D., and in 1896 Lavalle University, Quebec, bestowed the same honor. He was chosen rector of the Catholic University in 1896, made a domestic prelate in 1897, consecrated titular bishop of Samos, 1901, Nov. 24, and appointed bishop of Monterey and Los Angeles, 1903, March 27. He is a frequent contributor to various periodicals, and is the author of *New Testament Studies* now used in many Catholic schools.

CONCAN, *kon'kan:* territory in the presidency of Bombay, between the Arabian Sea and the watershed of the Western Ghauts; lat. 15° 44′–20° 22′ n., and long. 72° 52′ –73° 45′ e.; length 330 m., breadth 25–50 m. The more easterly section appears to be a succession of rocky terraces, of apparently volcanic origin. The maritime portion, averaging an elevation of 100 ft. above the sea, rises here and there to far greater heights, partly in isolated hills, partly in short ranges. The broad estuaries into which the rivers expand were formerly the retreats of pirates. Of the land available for cultivation, the larger part is on the banks of the rivers—the growth of rice in particular being promoted by the annual inundations. The chief peculiarity of the climate is, that the s.w. monsoon, arrested in its career by the lofty barrier on the e., has been known to yield in one year, a rainfall of nearly 300 inches. Omitting the city of Bombay (q.v.) as not being on the mainland, the principal towns are Junera, Ratnagheriah, Viziadroog, and Vingorla. In 1818, on the fall of the peishwa of the Mahrattas, Concan became British territory.

CONCATENATE, v. *kŏn-kăt′ĕ-nāt* [L. *concatēnātus*, chained together—from *con*, together; *catēnātus*, chained, fettered; *catēna*, a chain]: to unite in a series or chain, as links of a chain, or ideas in the mind depending on each other; to link together: ADJ. in *bot.*, chained or linked together. CONCAT′ENATING, imp. CONCAT′ENATED, pp. CONCAT′ENA′TION, n. *nā′shŭn*, a series or successive order of things connected with or depending on each other; a linking together.

CONCAVE, a. *kŏn′kāv* [F. *concave*—from L. *concăvus*, completely hollow— from *con*, *căvus*, hollow: It. *concavo*]: hollow: N. a hollow place scooped out; the inner surface of any rounded or spherical body—the inside is called the *concave surface*, the outside the *convex surface*. A surface is said to be concave when lines drawn from point to point in it fall between the surface and the spectator; and convex, when the surface comes between him and such lines; the terms, it is obvious, are mere terms of relation: see LENS: MIRROR. CONCAV′ITY, n. *kăv′ĭ-tĭ*, the inner surface of a rounded hollow body: the hollow place or part in any body. CONCA′VO-CON′CAVE, a. *kŏn-kā′vō*, concave on

both sides. CONCA'VO-CON'VEX, a. concave on one side and convex on the other. CONCA'VOUS, a. *-kā'vŭs*, hollow; without angles. CONCA'VOUSLY, ad. *-lĭ*.

CONCEAL, v. *kŏn-sēl'* [L. *concelārĕ*, to conceal—from *con*, *celārĕ*, to hide: comp. Gael. *ceil*, to hide: Ir. *ceal*, death]: to keep out of sight; to keep secret; to cover; to disguise; to dissemble. CONCEAL'ING, imp. CONCEALED', pp. *sēld'*. CONCEAL'ER, n. one who. CONCEAL'ABLE, a. *-ā-bl*, that may be hid or kept close. CONCEAL'MENT, n. the state of being concealed; a keeping close or secret; the act of hiding or withdrawing from sight; a place of hiding; a secret place; in *law*, a suppression of the truth.—SYN. of 'conceal': to hide; secrete; cover; screen; shelter; disguise; dissemble.

CONCEAL'MENT, in Criminal Law: offense of concealing an offender, after the commission of a crime, with a view of sheltering him from justice. It may be punished arbitrarily; but concealment, in consequence of an agreement before the crime was committed, involves the concealer in a charge of art and part in the principal crime.

CONCEALMENT OF PREGNANCY AND BIRTH: see PREGNANCY, CONCEALMENT OF: INFANTICIDE.

CONCEDE, v. *kŏn-sēd'* [F. *concéder*, to concede—from L. *concēdĕrĕ*, to depart, to yield—from *con*, *cēdĕrĕ*, to yield: It. *concedere*]: to yield; to admit as true, just, or proper; to surrender. CONCE'DING, imp. CONCE'DED, pp. —SYN. of 'concede': to cede; yield; grant; allow; admit; surrender; give up.

CONCEIT, n. *kŏn-sēt'* [It. *concetto;* F. *concept*, an imagination, anything conceived: L. *conceptus*, perceived, conceived]: an opinion; a pleasant fancy; an affected expression or forced allusion, often ingenious and curious, often absurd, marring much literary work in the 16th c. and 17th c., as in the verses of Donne and Cowley: an imagination of one's own importance. CONCEIT'ED, a vain; full of self-esteem. CONCEIT'EDLY, ad. *-lĭ*. CONCEIT'EDNESS, n. vanity; the state of being filled with too high an opinion of self. OUT OF CONCEIT WITH, no longer pleased and delighted with. CONCEIT', v. in *OE.*, to imagine; to think; to believe. CONCEIT'ING, imp. CONCEIT'ED, pp.—SYN. of 'conceit': thought; image; conception; notion; fancy; freak; opinion; estimation; vanity; pride;—of 'conceited': vain; proud; egotistical; opinionated; fanciful.

CONCEIVE, v. *kŏn-sēv'* [F. *concevoir*, to conceive—from L. *concĭpĕrĕ*, to conceive]: to form in the mind; to imagine; to understand or comprehend; to think; to receive into the womb; to breed. CONCEIV'ING, imp. CONCEIVED', pp. *-sēvd'*. CONCEIV'ER, n. one who. CONCEIV'ABLE, a. *-a-bl*, that may be understood or believed. CONCEIV'ABLY, ad. *-blĭ*. CONCEIV'ABILITY, n. *-bĭl'ĭ-tĭ*, capability of being conceived. CONCEIV'ABLENESS, n. *-bl-nĕs*, the quality of being conceivable.—SYN. of 'conceive': to apprehend; suppose; imagine; presume; assume; un-

derstand; comprehend; think; believe; devise; breed;—of 'conception': fancy; idea; imagination; notion; conception.

CONCENTAINA, *kon-thĕn-tī'nâ:* town of Valencia, Spain, picturesquely situated on a slope of the Sierra Mariola, 28 m. n. of Alicante. It is surrounded by old walls, flanked with towers; has some interesting old buildings; and manufactures of linen, woolen, paper, soap, etc. The fair annually held here is one of the largest in Spain. Pop. 8,100.

CONCENTRATE, v. *kŏn-sĕn'trāt* [F. *concentrer,* to meet in one centre—from L. and It. *concentrārĕ*—from L. *con, centrum,* the middle point]: to bring to one point; to bring to a common centre; to cause to come nearer to a common point or centre; to drive or bring into a narrow compass; to consolidate; to condense or make stronger, as by evaporating a solution. CONCEN'TRATING, imp. CONCEN'TRATED, pp. CON'CENTRA'TION, n. *-trā'shŭn,* the act of bringing nearer together; collection into one point or centre; the act of reducing to a smaller bulk. CONCEN'TRATIVE, a. *-tĭv,* tending to condense or hold together. CONCEN'TRATIVENESS, n. in *phren.*, one of the organs of the brain. CONCENTRATOR, *kŏn'sĕn-trā-tėr:* one who or that which concentrates; an apparatus for the separation of dry, comminuted ore, according to the gravity of its particles, by exposing a falling sheet of ore-dust to intermittent puffs of air. CONCENTRE, v. *kŏn-sĕn'tėr,* to come to a point; to bring to a centre. CONCENTRING, imp. *kŏn-sĕn'trĭng.* CONCENTERD, pp. *kŏn-sĕn'tėrd.* CONCEN'TRIC, or CONCEN'TRICAL, a. *-trĭk,* or *-trĭ-kăl,* having a common centre but with radii of differing length—as circles or circular layers within each other. CON'CENTRIC'ITY, n. *-trĭs'ĭ-tĭ.* CONCENTRIC OPERCULUM, an operculum (q.v.) that increases equally all round, and has its nucleus central or sub-central. Examples—Paludina and Ampullaria.

CONCEPCION, *kŏn-sĕp'shŭn,* Sp. *kōn-thĕp-thē-ōn':* bay of the Pacific Ocean which forms the harbor of the city of Concepcion. It affords good anchorage, communicating with the interior by the Biobio river, and sheltered from the open sea by the island of Quiriquino.

CONCEPCION: province in Chili, occupying the entire breadth between the Andes and the coast; 3,535 sq. m.; bounded on the s. by independent Araucania. Pop. 225,000.

CONCEPCION: city near the mouth of the Biobio, principal river of the republic of Chili; lat. 36° 50′ s., and long. 73° 5′ w. It is the cap. of the province of Concepcion. In 1835, the place was almost destroyed by an earthquake, the cathedral and most of the other public buildings having been thrown down. The city is nevertheless one of the most regular and handsome in the republic. The cathedral and several of the other public buildings are noteworthy. The industry of the place is chiefly in

the hands of foreigners, especially Germans. The discovery in 1852 of coal fields a little s. of Concepcion, has done much to forward the prosperity of the city. Talcahuano, the port of Concepcion, is the safest and best harbor in Chili, and ranks next to Valparaiso as a mart of foreign trade. Hides and tallow are exported. Pop. (1901). 49,727.

CONCEPT, n. *kŏn'sēpt* [L. *conceptum*, the thing conceived (see CONCEIT)]: object conceived by the mind; mental representation. CONCEP'TIVE, a. *sĕp'tiv*, capable of conceiving; active in conceiving. CONCEP'TUALISM, n. *-tū-ăl-ĭzm*, in *mental phil.*, see below. CONCEP'TUALIST, n. *-ā-lĭst*, one who maintains that conceptions are the only universals. CONCEP'TION, n. *-sĕp'shŭn* [F. *conception*—from L. *conceptĭōnem*]: the act of conceiving or being conceived: image or idea in the mind; the thing conceived; purpose; view, sentiment, or thought.

CONCEPT in philosophy: the mental state which expresses the precise 'idea' or 'meaning' of anything. This meaning is always the index of the character of objects or persons as it is revealed through their actions. Accordingly, concepts tell us what things are and how they will behave. The word 'hoe,' for example, indicates an instrument of a particular construction which can be used for a certain well-defined purpose in tillage. The process of forming concepts is called conception. Concepts are characterized in two distinct ways viz., as 'abstract ideas' and as 'general notions.' The abstract idea found in any concept is contained in its definition: the general notion in the range of the concept's application. For example the abstract idea of triangle is that of a 'three-sided figure'; its general notion is embodied in the classification of triangles as acute, obtuse, right-angled, equilateral, scalene, etc. The intellectual process which develops concepts as abstract ideas is known in science as 'abstraction,' that which develops general notions as 'generalization.' Finally if we assume, as we commonly do, that what is found to be true is true whenever and wherever found, we designate the abstract-idea phase of concepts, universals, and the objects which are included in their general-notion, as particulars.

CONCEPTACLE, n. *kŏn-sĕp'tă-kl*, or CONCEPTACULUM, n. *kŏn'sĕp-tăk'ū-lŭm* [L. *concĕptac'ŭlŭm*, that which serves for receiving—from *conceptum*, the thing received]: that in which anything is contained; in *bot.*, a hollow sac containing a tuft or cluster of spores.

CONCEPTION, n. *kŏn-sĕp'shŭn:* see under CONCEPT.

CONCEPTION, IMMACULATE: see IMMACULATE CONCEPTION.

CONCEPTION OF OUR LADY: order of nuns, founded 1484, in honor of the immaculate conception, by Beatrix de Sylva, sister of James, first Count of Poralegro, in Portugal. It was confirmed 1489 by Pope Innocent

VIII., who granted the sisterhood permission to follow the rule of the Cistercians; but after the death of the foundress 1489, Cardinal Ximenes put the nuns under the direction of the Franciscans, and imposed on them the rule of St. Clara. The order subsequently spread into Italy and France. Besides the grand office of the Franciscans, the nuns recite on Sundays and holidays a lesser office, called the office of the Conception of the Holy Virgin. Their dress consists of a white gown, a blue mantle, and a scapulary, on which is worn the image of the Virgin.

CONCEPTUALISM, n. *kŏn-sĕp′-tū-al-izm:* the metaphysical doctrine taught by Abelard in the Middle Ages in opposition alike to the Realism of William of Champeaux and to the Nominalism of Roscellinus. Its essential feature was that truth is not to be found either in universal essences which exist apart from particular facts, or in particulars which have no universal characteristics, but in concrete realities which have particularity of structure and also certain inherent similarities of constitution. Hence his objection to the Realistic motto 'Universalia ante rem' which would make the universal prior and transcendent to particulars, and also to the Nominalistic motto 'Universalia post rem,' which would reduce the universal to the condition of existing as a mere mental convenience. His own motto as formulated was 'Universalia in re;' that is, the universal is immanent in particulars and is diversified by them but has a real basis inasmuch as it constitutes their internal unity of structure or similitude.

CONCERN, n. *kŏn-sėrn′* [F. *concerner*—from L. *concernĕrĕ*, to concern—from L. *con, cernĕrĕ*, to see, to separate]: that which relates or belongs to one; business, interest, or affair; anxiety; careful regard; a business or those connected with it: V. to relate or belong to; to interest or affect; to be of importance to; to take an interest in; to disturb or be disturbed, as, I am much concerned about him. CONCERN′ING, imp. CONCERNED, pp. *-sėrnd′*. CONCERN′MENT, n. in *OE.*, a matter in which we are interested; influence; interposition; emotion of mind. CONCERN′EDLY, ad. *-ĕd-lĭ*. CONCERN′ING, prep. in regard to; about; relating to. CONCERN′INGS, n. plu. in *OE.*, important affairs; business.—SYN. of 'concern, n.'; business; affair; care; anxiety; solicitude; interest; regard; moment; firm or company.

CONCERT, v. *kŏn-sėrt′* [F. *concert*, concert, agreement —from It. *concerto:* L. *consertus*, joined together, to compose, to connect—from *con, sertus*]: to contrive and settle by mutual agreement; to strive in union for a common purpose. CONCERT′ING, imp. CONCERT′ED, pp.: ADJ. planned by persons acting in union. CONCERT, n. *kŏn′sėrt*, the union of two or more in effecting a common design or plan; agreement in a scheme; a number of performers playing or singing the same piece of music in

harmony; a musical entertainment; among the earliest series of such entertainments, still continued, are the Gewandhaus Concerts, Leipsic, established 1742, and the Concerts Spirituels, Paris, 1725. CONCERT-PITCH, the pitch to which a piano or other instrument is tuned for performance along with others; standard pitch. CONCER'TO, n. [It]: a musical composition written for one principal instrument, with accompaniments for a full orchestra. CONCERTANTE, n. and a. *kŏn-sėr-tân'tā* [It]: a term applied in the 18th c. to compositions for the orchestra in which there were special parts or solo instruments and occasionally to compositions for solo instruments without the orchestra. It is now generally used as an adjective indicating certain prominent solo parts in an orchestral composition, which are spoken of as 'concertante parts.' CONCERTINA, n. *kŏn'sėr-tē'nă*, a musical instrument, so called from the harmonious richness of its tones, or from having a double set of reeds: the sounds are produced by free vibrating springs of metal; the scale is very complete and extensive, beginning with the lowest note of the violin, G, and ascending chromatically for three-and-a-half octaves to C. Violin music can be performed on it with good effect. Every sound in the scale is double, and can be produced either by pulling the bellows open, or by pressing them together. Wheatstone of London was the inventor.—SYN. of 'concert, n,': harmony; union; concord; agreement;—of 'concert, v.': to contrive; plan; manage; devise; settle. *Note.*—In *Concert Pitch* the middle C (seated on the ledger-line which unites the G. and F clefs) is produced by a string making, according to theorists, 512 vibrations per second. In England, however, the pitch has risen to 538, while in Germany it is 528, and in France 522. The gradual rise of the pitch from the theoretical 512 vibrations is attributed to the necessities of piano-tuning on the one hand, and the desire to attain a more intense and brilliant tone on the other. See also PITCH.

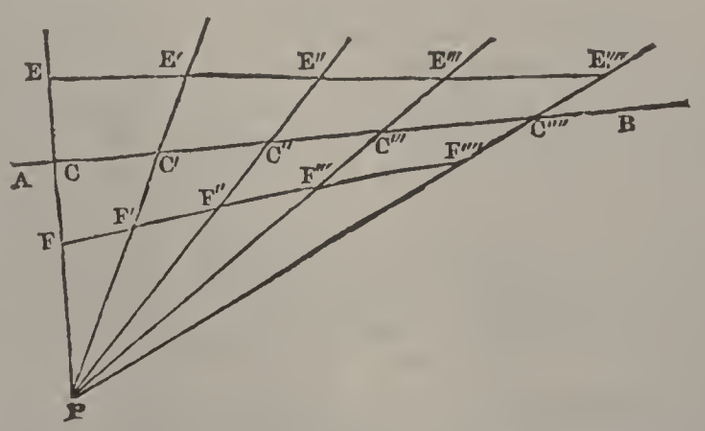
CONCERTO, *kon-sėr'to:* musical composition for a solo instrument, with orchestral accompaniments, calculated to give opportunity for highest mechanical skill and cultivation. The C. consists of three movements, each of which, like the whole, has a certain character, and like the symphony or the sonata, requires a clear development and treatment of the motives, and a strict adherence to the rules of form. When the form is in any way abridged, it is called a *concertino.* From the beginning of the 18th c. to the present time, the pianoforte and the violin are the solo instruments mostly used for the concerto. The oldest violin concertos are those by Tartini and his scholars. The French and Germans improved on these, and fixed the forms, which all the great masters of modern times have adhered to. Innumerable concertos have been written for the pianoforte, among which are many most masterly com-

positions. Concertos for wind instruments have been less regarded, and are generally written by the performers themselves, and seldom deserve to be called classical works.

CONCESSION, n. *kŏn-sĕsh'ŭn* [F. *concession*—from L. *concessiōnem*, an allowing, a granting—from *con*, *cessus*, yielded: It. *concessione*]: the act of yielding or conceding; the thing yielded; certain foreign rights and privileges granted by a government to a company on certain specific conditions, as, to construct a railway, granting a tract of land, etc.; acknowledgment by way of apology. CONCES'SIONARY, a. *-ĕr ĭ*, giving way to by indulgence; yielding: N. one who has received or holds a concession. CONCES'SIONIST, n. one favorable to concession. CONCES'SIVE, a. *-sĕs'sĭv*, implying concession. CONCES'SIVELY, ad. *-sĭv-lĭ*. CONCES'SORY, a. *-sĕr-ĭ*, conceding; yielding.

CONCH, n. *kŏngk* [L. *concha*, a shell: Gr. *kongchē:* It. *conca:* F. *conque*]: a sea-shell. CONCH SHELL, a large turbinated univalve that can be used as a trumpet; in some Pacific Islands the shell is a common musical instrument. CONCHA, n. *kŏng'kă*, the external ear by which sounds are collected and transmitted to the internal ear; in *arch.*, an apse. CONCHIFER, n. *kŏng'kĭ-fĕr* [L. *fero*, I bear or carry]: an animal covered with a shell; a bivalve CONCHIFERA, n. plu. *kŏng-kĭf'ĕr-ă*, or CON'CHIFERS, n. plu. the class of bivalve shell-fish in Lamarck's arrangement of mollusks, including the oyster, the mussel, the cockle, and the scallop; the class contains *Lamellibranchiata* (q.v.) and *Brachiopoda* (q.v.). CONCHIF'EROUS, a. *-ŭs*, producing or having shells. CON'CHIFORM, a. *-fawrm* [L. *forma*, shape]: having the shape of a shell. CONCHITE, n. *kŏng'kīt*, a fossil shell. CONCHIT'IC, a. *-kĭt'ĭk*, composed of shells; containing shells in abundance. CONCHO-SPIRAL, a kind of spiral curve as seen in shells.

CONCHOIDAL, a. *kŏng-koy'dăl* [Gr. *kongchē*, a shell; *eidos*, form]: shell-like—applied to that peculiar fracture of rocks and minerals which exhibits concave and convex surfaces, and so bearing a resemblance to shells. CONCHOID,



n. *kŏng'koyd*, a mathematical curve of a shell-like form, invented by Nicomedes, with the view of trisecting an angle, of constructing two geometrical means between two

given straight lines, and of 'doubling the cube. It is generated as follows: Let AB be any straight line, and P any point not upon it; then let a succession of lines FE, PE', etc., be drawn, cutting AB in points C, C', and let CE, CF be laid off from the points of intersection, each equal to a given line: then the curves traced by the successive points E and F form the conchoid. That branch which is above AB, and described by successive points E, E', is called the first or superior conchoid, and the other branch traced by points F, F', is called the second or inferior conchoid. Both branches are infinite in extent, and they have the line AB for a common asymptote. AB is also called the directrix, and P, the pole of the curve. The constant distance CE, of the points E and F, from the points of intersection is sometimes called the modulus of the curve. If we take C in the line EP as origin, and the lines AB and EP, at right angles to one another, as axes, the equation to the C. is $x^2 = \frac{(b+y)^2(a^2-y^2)}{y^2}$, where a is the modulus of the curve, and b = the perpendicular distance of P from AB. The curve may easily be described mechanically, and is frequently used in architecture as a bounding line of the vertical section of columns.

CONCHOLOGY, n. *kŏng-kŏl'ŏ-jĭ* [Gr. *kongchē*, a shell; *logos*, a discourse]: the natural history of shells and their inhabitants. CONCHOL'OGIST, n. *-ŏ-jĭst*, one who. CON'CHOLOG'ICAL, a. *-kō-lŏj'ĭ-kăl*, pertaining to.

CONCHOL'OGY: science which treats of shells and of the animals inhabiting them. C., as a science, is at least as old as the days of Aristotle; the study of it was resumed with that of the other sciences, when the dark ages had passed away; but since the beginning of the present c., it has given place to a more extended and comprehensive study of molluscous animals, now sometimes designated MALACOLOGY; the presence or absence of a shell having been found not to constitute one of the most important characters which distinguish different classes of mollusks. C., indeed, was only the form of the science suited to a time when the shell was more considered than its inhabitant. Yet the relations between shells and the mollusks which possess them are such, that the labors of the merest conchologists have contributed to the real advancement of science, both zoological and geological. It is upon the knowledge of these relations that many of the conclusions of the geologist are founded. In systems of C., shells were usually divided into three orders, *Univalves*, *Bivalves*, and *Multivalves*, according to the number of pieces—one, two, or more—of which they are composed. The first two were established by Aristotle, the third was added in modern times.

CONCHOMETER n. *kŏng-kŏm'ĕ-tĕr* [Gr. *kongchē*, a shell; *metron*, a measure]: an instrument for measuring the angle of the spires of shells.

CONCHOS. *kŏn'chōs* (or CONCHAS, *kŏn'châs*), RIVER: afflu-

ent of the Rio Grande flowing through the states of Durango and Chihuahua, Mexico, in a n.n.e. direction; length about 330 m.

CONCIERGE, n. *kŏng'sĭ ėrj'* [F.]: a housekeeper; a door-porter; keeper of a prison or a palace.

CONCILIAR, a. *kŏn-sĭl'ĭ-ėr* [L. *concĭlĭŭm*, an assembly for consultation, a council]: pertaining to a council. CONCIL'IARY, a. *-ėr-ĭ*, promulgated or approved by a council.

CONCILIATE, v. *kŏn-sĭl'ĭ-āt* [L. *concilātus*, joined together, united, conciliated: It. *conciliare:* F. *concilier*]: to win or gain, as the affections or goodwill; to reconcile or bring to a state of friendship persons or parties formerly at enmity or variance. CONCIL'IATING, imp. CONCIL'IATED, pp. CONCIL'IA'TOR, n. *-tėr*, one who. CONCIL'IA'TION, n. *-ā'shŭn* [F.—L.]: the act of gaining back favor, esteem, or affection. CONCIL'IATORY, a. *-tėr-ĭ*, tending to conciliate.

CONCISE, a. *kŏn-sīs'* [F. *concis*, concise—from L. *concīsus*, cut to pieces, cut down, brief—from *con*, *cædo*, I cut —*lit.* cut down]: brief; short; comprehensive; containing few words. CONCISE'LY, ad. *-lĭ*, in few words; shortly. CONCISE'NESS, n. brevity in speaking or writing. CONCIS'ION, n. *-sĭzh'ŭn* [F.—L.]: a cutting of or down; the Jews in the N. T. who adhered to the rites of the law only.—SYN. of 'concise': succinct; condensed; laconic; terse; compendious; brief; summary; comprehensive.

CONCLAVE, n. *kŏn'klāv* [F. *conclave*—from It. *conclave* —from L. *conclāvē*, a room, a chamber—from *con*, *clāvis*, a key—*lit.*, a room locked up]: the meeting of cardinals for the election of a pope; the place where the meeting is held; any close assembly. The practice of a conclave at a pontifical election originated at the election of Gregory X. at Viterbo, 1271, and was regulated by the Council of Lyon, 1274, with formalities still substantially in force. The conclave must consist of a single apartment, having only one door, which is kept securely locked. Food and other necessaries are handed through a window, and are subjected to a rigorous examination, in order to prevent communication with the outer world; the cardinals not being allowed to leave the place, or to receive or send out letters, until a new pope is chosen. As the conclave was usually held in the Pauline Chapel at Rome, little cells were erected in one of the galleries, each to form the lodgment of a cardinal.

CONCLUDE, v. *kŏn-klôd'* [L. *conclu'dĕrĕ*, to shut up: *conclusus*, shut up—from *con*, *claudo*, I shut: It. *concludere:* F. *conclure*]: to shut up or inclose; to infer; to decide or determine; to close or finish; to end; to form an opinion. CONCLU'DING, imp.: ADJ. final; closing. CONCLU'DED, pp. CONCLU'SION, n. *-klô'zhŭn*, end; close; inference or consequence; final determination or judgment. CONCLU'SIVE, a. *-zĭv*, final; decisive. CONCLU'SIVELY, ad. *-lĭ*. CONCLU'SIVENESS, n. the quality of being decisive.—SYN.

of 'conclude': to finish; close; complete; end; terminate; infer; decide; determine; include; comprehend;—of 'conclusion': close; inference; deduction; end; consequence; induction; decision; determination; cessation; extremity;—of 'conclusive': final; decisive; ultimate.

CONCOCT, v. *kŏn-kŏkt'* [L. *concoctĭōnem*, digestion—from *con*, *coctus*, prepared by fire, cooked]: to digest as food in the stomach; to purify; to refine; to ripen; to form and mature in the mind; to plan or devise, as a scheme. CONCOC'TING, imp. CONCOC'TED, pp. CONCOC'TION, n. *-kŏk'shŭn*, the change which food undergoes in the stomach; maturation by heat; the process of purifying. CONCOC'TER, n. one who plans. CONCOC'TIVE, a. *-tĭv*, having the power of digesting.—SYN. of 'concoct': to digest; mature; perfect; ripen; plan; plot; scheme; contrive.

CONCOLOR, a. *kŏn-kŭl'ėr*, or CONCOL'OROUS, a. *-ėr-ŭs*, or CONCOL'ORATE, a. *-ėr-āt* [*con*, and *color*, which see]: of the same or similar color; without variety.

CONCOMITANT, a. *kŏn-kŏm'ĭ-tănt* [F. *concomitant*—from L. *concomĭtan'tem*, attending—from *con*, *comĭtans*, following, attending: It. *concomitants*]: coming and going with as attendants; conjoined with; accompanying; attending: N. an attendant; that which accompanies; a natural consequence or accompaniment of anything; in *OE.*, a person or thing collaterally connected. CONCOM'ITANTLY, ad. *-lĭ*. CONCOM'ITANCE, n. *-ĭ-tăns* [F.—L.]: also CONCOM'ITANCY, n. *-tăn-sĭ*, the being conjoined with or accompanying another thing. SACRAMENTAL CONCOMITANCE, in the Roman Catholic Church, the doctrine that, sacramentally, the body and the blood of Christ accompany each other.

CONCOMITANT SENSATION: (1) As synonymous with Synaesthesia (q.v.), a sensation which accompanies another sensation as the result of habit of association in mental imagery, *e. g.* number forms, colored hearing, colored taste, etc. (2) A sympathetic sensation, *i.e.*, a sensation set up in parts not stimulated, but as a result of other stimulation; *e.g*, a simultaneous sensation of pressure in one part of the skin when an actual touch is felt in another; or, seeing with one eye when the other is stimulated.

CONCORD, n. *kŏng'kawrd* [F. *concorde*—from L. *concordĭă*, agreement—from *con*, *cordem*, the heart: It. *concordia*]: agreement between persons or things; harmony; union; peace; agreement or proper relation of words in a sentence; harmony of two or more sounds in music. CONCORDANCE, n. *kŏn-kŏr'dăns* [F.—L.]: an index or dictionary of the words and phrases, and sometimes of passages, of the *Scriptures*, with the book, chap., and verse in which they occur; a similar verbal index of any other book. CONCOR'DANT, a. [F.—L.]: agreeing; corresponding. CONCOR'DANTLY, ad. *-lĭ*. CONCOR'DANCY, n. *-dăn-sĭ*. CONCORDAT, n. *kŏn-kŏr'dăt* [F.—from It. *concordato*, a convention—from L. *concordārĕ*, to agree together]: a treaty or compact between a sovereign and the pope on religious questions.—

SYN. of 'concord': harmony; consonance; unison; concert; union; agreement.

CONCORD, *kŏng'kẽrd:* town of Middlesex co., Mass., on the C. river, 20 m. n.w. of Boston. It was incorporated 1635; was the seat of the first provincial congress of Mass. 1774–5; the depository of the military stores of the colony; and the scene of a fatal engagement between a small body of local militia and a body of British troops sent from Boston to seize the stores, 1775, Apr. 19. This fight, which occurred on the n. bridge, is historically regarded as the real beginning of the revolutionary war, and resulted in the retreat of the British. C. has a national bank, a public library, a high school, the new state prison, and three churches. The chief industries are the manufacture of wooden ware and cotton and woolen flannels. It has a delightful rural character, and has gained celebrity as a centre of literature and philosophy, being the home of the Alcotts, Emerson, Hawthorne, Thoreau, and other persons famed in the literary world. Pop. (1870) 2,412; (1880) 3,922; (1890) 4,427; (1900) 5,652.

CON'CORD: city, cap. of Merrimac co. and of the state of New Hampshire, on the Merrimac river, 18 m. n. of Manchester, 75 m. by rail n.n.w. of Boston, 474 m. n.n.e. of Washington, 130 m. s. of Mt. Washington, and 30 m. s. of Winnipiseogee Lake; lat. 43° 13′ n.; long. 71° 29′ w.; extends over two m. along the river It was settled 1725, incorporated under the name of Rumford 1733, under its present name 1765, and made a city 1853; and was originally the seat of the Penacook Indians. The main part of C. is on the w. side of the Merrimac river. It is one of the largest railroad centres in New England, the C., the C. and Claremont, the Northern, and the Boston C. and Montreal roads having stations there. Its industries are many and varied, the principal being the quarrying and dressing of the fine-grained white granite from quarries in the vicinity, and of marble, and the manufacture of carriages, furniture, cotton and woolen goods, machinery, leather-belting, organs, and flour. C. is an attractive city, and pleasantly situated. It contains the state house, built 1816, enlarged 1866, the state asylum for the insane, the new state prison, a court house and city hall, a U. S. govt. building, opera house, orphans' home, a number of public halls, and seventeen churches in which the leading denominations are represented. It has also several graded schools, a high school, a Prot. Episc. training school for boys, a public library, three national and four savings banks, one daily and three weekly newspapers, and an admirable water supply and sewage system. Valuation (1902) $11,394,218. Pop. (1870) 12,241; (1880) 13,843; (1890) 17,004; (1900) 19,632.

CON'CORD, in Music: defined by English writers as the relation, harmony, or agreement between two or more consonant sounds; such as the union of the major or minor third with the perfect fifth and octave. The German musical technology gives a wider meaning to this term,

defining C. as every simultaneous sounding of tones, whether in single intervals or in complete chords, and whether consonant or dissonant.

CONCORD, Book of: standard of doctrine adopted by the civil and ecclesiastical authorities of Saxony at Torgau 1576, imposed upon the churches as a form of communion, and generally accepted by Lutherans. It was composed by order of Augustus, elector of Saxony, with the double view of stating the form of doctrine to be received and of terminating the religious troubles of the time, and its preparation and publication cost him $53,000. Twelve eminent divines were invited to Lichtenburg, who in an assembly afterward convoked at Torgau examined and considered the principal points and finished the work in Kloster-Bergen, after which followed the solemn signing by the several electors, princes, counts, and representatives of the states of the empire, and the printed publication of the work, 1580. This is in two divisions, Confessions and Formula. The former embraces the Apostles', Nicene, and Athanasian creeds, the Augsburg Confession, Apology of the Confession, the Schmalcald Articles, and Luther's two catechisms; and the latter has for its topics the Rule of Faith and the Creed, Original Sin, Free-will, Justification, Good Works, the Law and the Gospel, Third Use of the Law, the Lord's Supper, the Person of Christ, the Descent into Hell, Ceremonies, the Adiaphora, Predestination, and a treatise on sects and heresies.

CONCOR'DANCE: book arranged in alphabetical order, and showing in how many passages all, or at least all the more important words in any work occur. For writings of universal import, from which passages are continually being adduced to prove or support principles affecting our daily life and action, such a hand-book is indispensable The necessity of a C. for the Bible seems to have been felt at an early period. The first was executed by Antonius of Padua (b. 1195, d. 1231), who published it under the title *Concordantiæ Morales*. He was followed by Hugo de St. Caro (1244) and others, all of whom based their labors on the Latin Vulgate. A Greek C. by Euthalios of Rhodes was prepared about 1300, but has been lost. The Alexandrine C. of the Old Testament was compiled by Conrad Kircher in the 16th c., and Xistus Vetuleius published, 1546, a C. of the Greek New Testament, which was republished and amended by Stephens 1600. In Hebrew, a C. was drawn up by Rabbi Isaac Nathan 1438, amended by Marius of Calassio (Rome 1620), by John Buxtorf (1632), and by Fürst (Leip. 1837–41). The chief concordances for Luther's translation of the Bible are those of Lankisch, Büchner, Wichmann, and Schott. For the authorized English version of the Bible, the C. for a long time the best was compiled by Alexander Cruden, (published 1737; numerous editions since). It was far surpassed by the publication 1879 of the *Analytical Concordance to the Bible*, by Robert Young, L L.D., of Edinburgh. There is a C. to the Psalter in the Book of Common Pray-

er, and to the Christian Year. Crutwell's *C. of Parallels* dates from 1790. The *Complete Concordance to Shakespeare*, compiled by Mrs. Cowden Clarke (1845), is invaluable. There is a C. to Pope; also to Tennyson. Noticeable also is *A Concise Poetical Concordance to the Principal Poets of the World*, compiled by Chas. A. Durfee (John B. Alden, N. Y. 1885); embracing titles, first lines, characters, subjects, and quotations.

CONCORDAT: compact or treaty; sometimes used of purely secular treaties, but now designating almost exclusively a compact on ecclesiastical affairs between the pope, as head of the Rom. Cath. Church, and the temporal ruler of a kingdom or state. Concordats commonly relate to things neither purely spiritual, as faith, the sacraments, or worship; nor purely temporal, as civil rights, taxation, etc.; but to matters which are mixed, regarding which, each power makes certain claims, in regard of which the action of the two powers can with difficulty be dissociated; and in which, therefore, in the hope of harmonious co-operation for the public good, each is willing to cede to the other a portion of its peculiar claim. Concordats are of two kinds—the first in the form of a treaty, to which both the contracting powers are formally consenting parties; the second, in which the terms are concerted by both, or, at least, are mutually accepted, but are published only by one, usually by the pope, in the form of a bull, reciting the enactments which result from the agreement. This difference is only in form. In both, it is a settled doctrine of Rom. Cath. canonists, and especially of those of the ultramontane (q.v.) school, that the pope never absolutely cedes purely spiritual powers. Thus, in the presentation to bishopries, while the king 'nominated' or 'elected,' the pope always reserved to himself the power of 'canonical institution.'

Following is a brief enumeration of the most important concordats: (1) *Concordats with Germany.*—The earliest subject of negotiation between church and state in Germany was the mode of electing the popes, to which subject may be referred the compact of Otho I. with John XII., and the constitution of Leo VIII.; but the well-known C. of Worms, 1123, regarding investitures, is commonly regarded as the first, strictly so called. Similar agreements took place on the question of the *Regalia* (q.v.) between the Roman see and the emperors Otho IV., Frederic II., and Rudolph of Hapsburg. A more comprehensive compact on church matters is that of which the foundation was laid at Constance, 1418, and which was subsequently modified by the 'Frankfort' or 'Princes' Concordat,' by the C. of Aschaffenburg, and by that of Vienna; which last, though practically disregarded by Joseph II. and Leopold, continued in use till the suppression of the emperor of Germany 1803. Its place was supplied, under Pius VII. and his immediate successors, by separate concordats with Bavaria, 1817; Prussia, 1821; Baden, Würtemberg, and other minor states, 1818; Hanover, 1824; Saxony, 1827; and the Netherlands, in the same

year. The last German C. was that concluded at Vienna, 1855, August 18. The chief articles were that the pope should have direct communication with the bishops, clergy, and people; and archbishops and bishops with their clergy and their flocks, and the right to govern their sees according to the canonical law. Education was placed entirely under the control of the church. The bishops were to settle what books should be used. The chief inspector of schools was to be chosen by the emperor from among the individuals selected by the bishops. The government bound itself to prevent the dissemination of books pointed out as dangerous to religion by the bishops or archbishops. All questions of marriage, except so far as they might involve civil consequences, were reserved exclusively to the ecclesiastical courts. Priests guilty of crimes were to be tried in the temporal courts; but the bishop was to be duly notified of the fact, and convicted priests were to be imprisoned apart in a monastery or other ecclesiastical building. The emperor was to choose bishops, but with the advice of the existing bishops and archbishops. The church might acquire new property; but once acquired, it should not be sold or mortgaged without the consent of both pope and emperor. This C. was set aside, 1868, in all the dominions of the emperor of Austria. (2) *With France.*—The Pragmatic Sanction ascribed to St. Louis, but really of later date, has some of the characteristics of a C.; but the first proper concordat is that of Francis I. with Leo X., 1515 and 16, which continued in force, though with more than one conflict of the two powers, till the Revolution. In re-establishing the church in France, Napoleon Bonaparte, as first consul, concluded with Pius VII., through the agency of Cardinal Consalvi, the celebrated C. of 1801; which he afterward compelled the pope, then a captive at Fontainebleau, to modify by a new act, 1814. Both were ignored at the Restoration; but an attempt to produce a substitute, 1817, and again, 1819, led to no practical change. (3) *With Italy.*—In Italy, an agreement regulating the election of bishops was concluded with Nice and Savoy by Nicholas V., 1451; and a formal C. was made with Sardinia by Benedict XIV., 1740. The ecclesiastical affairs of Naples were anciently regulated by the terms of what was called the *Monarchia Sicula;* but a formal C. was concluded with Charles III. by the same pope, 1741, and a new C. was made by Pius VII., 1818. (4) *With Spain.*—Charles V. concluded a C. for his Spanish kingdom with Adrian VI. and Clement VII.; and a further C. was made by Clement XII. and Philip V., 1737. (5) *With Portugal.*—Benedict XIV. made a C. with Portugal, 1741.

CONCORDIA, *kon-kawr'dĭ-a:* Roman goddess, worshipped chiefly that peace might be preserved in families. On the coin and medals of the emperors, C. was represented holding a cup with one hand and a cornucopia with the other; on those of Marc Antony, she was represented beneath the emblem of two serpents tied together, and rising up in the figure of a bow, to compass an altar on which

WASHINGTON FILTRATION PLANT.

View of filtered water reservoir during construction, showing method of building the concrete pillars for supporting the groined arches of the roof. These pillars are monoliths 25 feet high and 30 inches square. This reservoir covers about two acres of ground and is capable of holding 25,000,000 gallons of water. It is considered the finest piece of work of its kind in existence. These works were completed with great expedition under the direct supervision of John Donald Maclennan, M. Am. Soc. C. E.

lay the head of Augustus; and on those of Cæsar Augustus, she appeared holding a horn of plenty with one hand, and presenting fruits with the other to Lepidus, Antony, and the younger Cæsar, triumvirs. Temples were raised in her honor on the declivity of the Capitol at Rome, in the portico of Livia, and on Mt. Palatine; the latter was built of brass by Cn. Flavius, on account of a vow made to Cæsar for reconciling the senate and people. The crow was consecrated to her.

CONCORDIA, Kan., a city and county-seat of Cloud county, situated on the Republican River and on the Atchison, T. &. St. F.; the Missouri Pac.; and the Union Pac. R.R.'s, 110 miles northwest of Topeka. It has good water power and shows considerable manufacturing activity. There are iron-works and flour-mills and factories for making plows, wagons and cigars. Nazareth Academy is located here, and there is a United States land-office. Pop. (1900) 3,400.

CONCORDIA, Argentine Republic, a town of the state of Entre Rios, on the Uruguay, 302 miles north of Buenos Ayres by river. It has a custom-house and a river trade exceeded only by that of Buenos Ayres and Rosario, exporting salted meat and Paraguay tea. It has railway connection with Paraná, Uruguay, and South Brazil. Pop. about 13,000.

CONCORDIA COLLEGE: an educational institution in Fort Wayne, Ind., organized in 1839 under the auspices of the Lutheran Church; reported at the end of 1906: Professors and instructors; 10; students, 245; volumes in the library, 8,000; grounds and buildings valued at $100,000; income, $12,400; number of graduates, 1,200.

CONCOURSE, n. *kŏng'kōrs* [F. *concours*—from L. *concursus*, a meeting together—from *con*, *cursus*, run: It. *concorso*]: a running together; confluence; an assembly of men or things.

CONCRESCENCE, n. *kŏn-krĕs'ĕns* [L. *concrescen'tem*, growing strong—from *con*, *cresco*, I grow]: growth or increase; the act of growing by the union or agglutination of separate particles. CONCRES'CIBLE, a. *-sĭ-bl*, capable of congealing.

CONCRETE, a. *kŏn'krēt* [F. *concret*—from L. *concrētus*, grown together, hardened—from *con*, *crētus*, grown: It. *concreto*]: *literally*, united in growth; formed by massing several things together; having a real existence; material; tangible; not abstract, but applied to a subject,—as *white* or *whiteness*, the abstract—*white sugar*, the concrete (see ABSTRACTION): a concrete notion is the notion of an object as it exists in nature, invested with all its qualities, as any particular flower, leaf, or tree: an abstract notion is the notion of any attribute of that flower, leaf, or tree, such as its color, form, or height; qualities which may be thought of independently of the objects in which they inhere, though they cannot exist independently.—The abstract method of handling a subject is adapted to speculation

and reasoning; the concrete, to poetic effect and impressive illustration. CON′CRETE, n. a compound; a mass formed of sand, pebbles, etc., cemented together: V. *kŏn-krēt′*, to unite or form into one mass; to congeal or grow hard. CONCRE′TING, imp. CONCRE′TED, pp. CONCRETE′LY, ad. *-lĭ*. CONCRETE′NESS, n. state of being concrete. CONCRE′TION, n. *-krē′shŭn*, the act of growing together; a mass formed by the union of various parts adhering to one another, strictly of concentric layers; a mass formed by the deposition of several layers of matter around an original nucleus or kernel. CONCRE′TIVE, a. *-krē′tĭv*, causing or tending to concrete. CONCRE′TIONAL, a. *-krē′shŭn-ăl*, or CONCRE′TIONARY, a. *-shŭn-ėr-ĭ*, pertaining to; made up of concretions. CONCRETISM, n. *kŏn-krē′tĭzm*, the quality of being concrete. CONCRETER, n. *kŏn-krēt′ėr*, in *sugar-boiling*, an apparatus for concentrating syrup, by allowing it to flow in a boiling condition over the surface of a heated pan, and then subjecting it to the heat of a copper cylinder revolving over a fire, and having an internal hotblast. CONCRETIONARY DEPOSITS, in *geol.*, chemically formed deposits, generally arising from calcareous and silicious springs. CONCRETE NUMBER, a number applied to a particular object—as *three* men, *six* months.

CONCRETE, in logic: a logical term which serves to indicate a particular thing in distinction from an abstract or general quality. Stone, red thing, brute, man, table, book, father are concrete terms. Stoniness, redness, brutality, humanity are abstract terms: see also ABSTRACT.

CONCRETE: an artificial stone composed of cement, sand, and broken stone or gravel mixed together with water in certain definite proportions. It is made by first mixing the cement with sand, and then adding the broken stone or gravel, the whole being thoroughly intermixed; the mixture of cement and sand is called the matrix, and the addition of broken stone or other material, the aggregate. The proportions of the various parts vary; a typical concrete is composed of 1 part of cement to 2 parts of sand and 4 of aggregate; this is known as the 1:2:4 mixture; 1:3:5 and 1:5:10 are also standard mixtures. In the composition of a properly proportioned concrete the sand fills up the interstices between the pieces of rock, and the cement, in turn, fills up the interstices between the particles of sand and between the sand and the rock. The cement also performs an even more important function. It enters into chemical combination with the water used in mixing and acts as a binder, tenaciously holding the whole mass together. As soon as the cement is mixed with water this chemical change commences, or the concrete begins to 'set' as it is generally expressed. Therefore the concrete must be put in place immediately after mixing. At the end of about three or four days, the concrete is solid enough for the supporting forms to be removed and after possibly thirty days it is ready for the loads for which it is designed. The hardening continues for months and the concrete becomes stronger as time elapses.

WASHINGTON FILTRATION PLANT.

View showing exterior of concrete vaulting of filter beds before being covered with earth. Also shows the round ventilating manholes. In the background at the right, the vaulting has been covered with two feet of earth ready to receive a coat of top dressing, after which it will be sown with grass seed, so as to give the finished filter bed the appearance of a park.

CONCRETE.

In the process of mixture there are two extreme methods of watering, one very wet and the other scarcely more than moist, but the modern tendency is toward wet concrete. In making concrete everything depends on thorough mixing, and for this purpose various types of machines are in use, which may, however, be grouped into two main classes, the 'batch' mixers, in which the concrete is made in certain measured quantities or 'batches,' and the 'continuous' mixers, which are continuously discharging the made concrete at one end, while being fed at the other. In the U. S. there is a decided preference for the 'batch' mixers, because it is believed that the mixing can be more thorough in these machines than when the materials are continually moving forward.

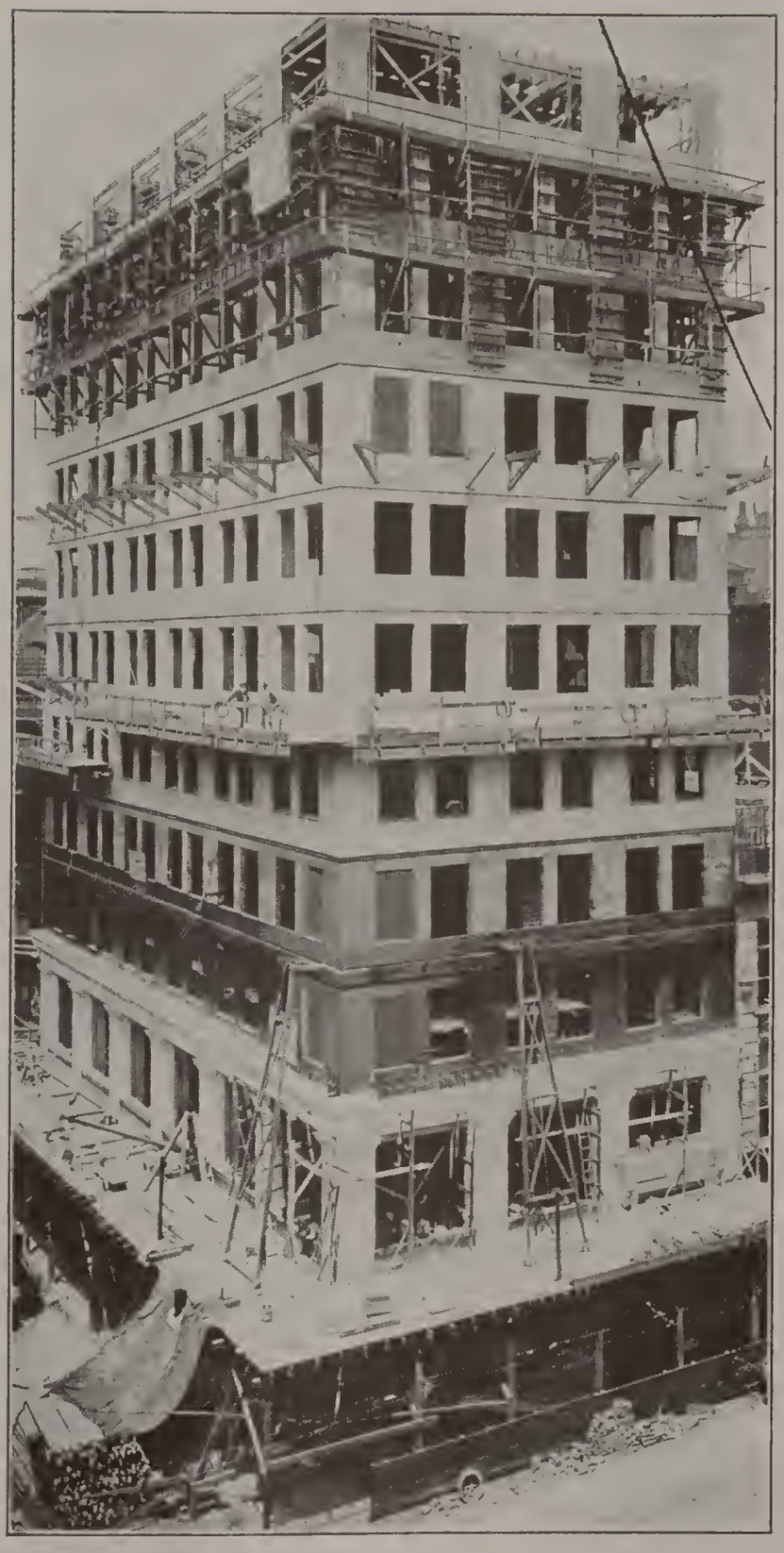
A form of concrete, made with lime instead of cement, was used in ancient times, especially by the Romans in constructing their walls, aqueducts, piers, and roads. The dome of the Pantheon, erected at the beginning of the Christian era, is built of concrete, as are some of the other historic structures of that period. It has been used ever since to a greater or less extent. The use of concrete has grown with the growth of the Portland cement industry (see CEMENT), until now it has assumed its place as one of the principal materials of engineering. It is used for foundations, submarine work, bridge work, fortifications, sewers, reservoirs, etc., and for building purposes; it has also been used for road and street pavements, and is advocated by many engineers as an ideal material for road building. Among the large reservoirs concreted are the Washington filtration plant reservoir and the Jerome Park Reservoir of New York City. One of the recent developments in the use of concrete is the making of hollow blocks for house construction. The blocks are made by special machines, some of which are also used to turn out shingles, posts, pillars, and ornamental designs; many of these machines can make blocks of great variety of size and shape.

The use of concrete in large building and engineering enterprises has been greatly increased by its combination with steel in what is known as armored or reinforced concrete. Concrete will stand enormous compression strains, but its capacity of resistance to tensile and shearing strains is much less than its compressive resistance.

The combination of steel with the concrete supplies this deficiency. The combination is rendered entirely feasible by the facts that concrete has considerable adhesion for iron and steel, and the co-efficients of expansion (by heat) of the two materials are practically identical. In all the 'systems' of reinforcing concrete the steel is completely imbedded in the concrete, but the sections of steel employed vary in shape and size; they may be either round, flat, square, angle, or tee-shaped. In the U. S. the Ransome system, in which a bar of twisted steel is used, is most extensively employed. The use of expanded metal meshing as reinforcement is also coming into favor,

because especially adapted to the lighter forms of work, where the concrete is too thin to allow the use of rods. An important consideration in the use of reinforced concrete is the economy in initial cost. The compressive resistance is obtained more cheaply in concrete than in steel, the tensile resistance more cheaply in steel; hence when a structure is so designed that all the compression stresses are resisted by concrete and all the tensile stresses by steel, each material is serving the purpose for which it is cheapest and best adapted. Another advantage of reinforced concrete is that the concrete affords almost perfect protection to the steel from corrosion and deterioration, and that, therefore, a reinforced concrete building is much more durable than the ordinary steel-frame. A third advantage of great importance is its resistance to fire; not only has reinforced concrete withstood the severest tests made by municipal fire departments, but in the Baltimore fire and other large conflagrations, concrete buildings have stood almost intact, where others were partially or completely destroyed. Reinforced concrete, therefore, is increasingly used for large buildings, such as factories, warehouses, office buildings, etc., and in important engineering enterprises, especially for railroad bridges, abutments, and culverts. Of the notable reinforced concrete buildings may be mentioned the Ingalls Building of Cincinnati, one of the first to be built entirely of this material, and still one of the largest, and the Los Angeles Auditorium. Reinforced concrete is also being used extensively in the rebuilding of San Francisco.

CONCRE'TION, in Medicine: formation of solid unorganized masses within the living body, either by chemical precipitation from the fluids, or by the accidental aggregation of solids introduced into the system from without. In the former case, a concretion is termed a calculus (q.v.); in the latter, the concretion may be either wholly composed of solids foreign to the body, or these may be mingled with the elements of the secretions, as with mucus, or calculous matter. Thus beans, peas, needles, etc., introduced into the cavities of the body, have become the nuclei of concretions, by attracting around them mucus, or crystalline deposits from the urine. The most remarkable forms of concretion, however, are perhaps those formed in the stomach and intestines of man and the lower animals, from the more solid and indigestible parts of the food, or of substances improperly swallowed. Thus, young women have been known to acquire the habit of swallowing their own hair to a great extent; and very large concretions have been thus formed, which have proved fatal, by obstructing the passage of food. The use of oatmeal in large amount has also been found to lead to concretions, especially when eaten coarsely ground and unboiled; such concretions have commonly been found in the intestines. The excessive domestic use of magnesia, in the solid form, as a laxative, has been known to have a similar effect. In certain animals, intestinal concretions are not uncommon, and



INGALLS CONCRETE BUILDING, CINCINNATI.

This building has sixteen stories, a basement, a sub-basement, and an attic, measures 100 x 50½ feet, and rises to a height of 210 feet from the sidewalk to the cornice. The distance from floor to floor is 12 feet, 6 inches, for the offices stories, and 17 feet in the telegraph exchange on the sixteenth floor. For the installation of the concrete steel construction, three stories of interior forms and two stories of exterior forms were used. The method of employing these forms is illustrated in the engraving.

grow to an immense size; they used to be greatly prized as antidotes, and were used in medicine under the name of bezoars (q.v.). In certain forms of morbid deposits, such as fibrous tumors (see TUMOR), and in tubercle (q.v.), concretions not unfrequently form; they are composed mostly of phosphate of lime.

CONCRETIONARY STRUCTURE: among the strata of rocks formed by deposition of sediment it is a common thing to find lumps of material differing more or less in chemical composition from the strata in which they lie, and, though separated from each other by short intervals, still arranged in layers conforming to the general stratification. The balls of argillaceous iron ore found in the shales of the coal formation are examples of these concretions. They have no regular form, but are generally flattened spheroidal masses, and are commonly called 'kidney-shaped.' In the clay beds of the Tertiary group, in various parts of the country, are found curious collections of clay concretions, harder and more compact than the rest of the clay, and presenting forms in imitation of nuts, fruits, and different organic substances. The resemblance is so striking that common observers are satisfied that they see actual relics and petrifactions instead of mere aggregations of inorganic matter. Through each one of these clay concretions a hole may be traced, which was at some time filled with a rootlet, the carbonaceous residue of which, if not the form of the root itself, may be observed. This appears to have been a nucleus around which the material collected, following the law of attraction by which neighboring particles of the same composition seek out and join with each other when in a medium that admits of their movement. In argillaceous deposits, even among the older stratified rocks, the same tendency appears to have obtained after the deposition of their materials. The calcareous portions separated from the shaly or sandy strata, and arranged themselves in these concretionary layers. But if the quantity of calcareous matter was sufficient to form a stratum of itself, this force appears not to have been exerted to produce the spheroidal masses; except occasionally the rock is said to have a concretionary structure when it displays a tendency to form here and there along its course bunches or knots, as if these parts had curled and rolled over, presenting very much such an appearance as is observed in very gnarled and knotty wood. In the shales of the Lower Secondary in New York State, particularly in those of the Hamilton and Portage groups, numerous dark-colored calcareous concretions are found of extraordinary size and forms. They abound along the shore of Lake Erie, washed out of the banks by the action of the waves. Very often they are formed about some nucleus of entirely different substance from their own as a fossil shell or a nodule of iron pyrites; and the fossil shell not infrequently has first served as a nucleus for an incrustation of pyrites, by which it was completely buried before both were concealed within the large con-

cretionary mass. After the forming and hardening of the concretions, they appear to have cracked by shrinkage, the cracks sometimes radiating from the centre or taking other irregular directions. The cracks afterward became filled with light-colored clay or calcareous matter, and now appear like mineral veins.

CONCUBINE, n. *kŏng′kū-bīn* [F. *concubine*—from L. *concubīna*, a concubine—from *con*, *cŭbo*, I lie down: It. *concubina*]: a woman who cohabits with a man without being married; an inferior wife. CONCU′BINAGE, n. *-bĭ-nāj*, living together, as husband and wife, without marriage. CONCU′BINAL, a. *-bī-năl*, pertaining to. CONCUBINARY, n. *kŏn-kū′bĭ-nĕr-ĭ*, one who lives with a concubine.—The earliest Roman laws were distinguished for the strictness with which they treated marriage. They not only upheld thoroughly the principle of monogamy, but they fettered marriage itself with many burdensome forms. Hence arose the practice of a free unmarried man entering into a less strict relation with a single woman—a sort of permanent cohabitation. The offspring of such connection, called natural children, had not the rights of legitimate children, but they were recognized by the father. Augustus, with a view to promote regular marriages, and check the growing licentiousness, enacted a comprehensive marriage-law (*Lex Julia et Papia Poppæa*), which still allowed concubinage, but only with women of low rank or who had lost their station. Christianity required the complete sanctity of marriage, and utterly forbade concubinage, although the civil law long continued to tolerate separation at pleasure. In the eastern empire, concubinage was entirely prohibited by the emperor Leo. The ancient laws of the Germans recognized, besides regular marriage, an informal connection of the sexes. In the middle ages, a similar connection became customary, called a 'left-handed,' or morganatic marriage (q.v.). The Code Napoleon does not allow concubinage, but the wife can sue for separation only when the husband maintains a mistress in the common dwelling.

CONCUPISCENCE, n. *kŏn-kū′pĭs-sĕns* [F. *concupiscence*—from L. *concupis′cens*, longing much for—from *con*, *cūpĭō*, I desire: It. *concupiscenza*]: desire for unlawful pleasure; lust; lechery. CONCU′PISCENT, a. lustful. CONCUPISCIBLE, a. *kŏn-kū′pĭs-ĭ-bl*, in *OE.*, irregularly desirous; libidinous.

CONCUR, v. *kŏn-kėr′* [L. *concurrĕrĕ*, to run together—from *con*, *curro*, I run: It. *concorrere:* F. *concourir*]: to meet in the same point; to agree or unite in action or opinion; to combine; to coincide. CONCUR′RING, imp. CONCURRED′, pp. *-kėrd′*. CONCUR′RENT, a. *-kŭr′rĕnt*, acting in conjunction: conjoined; united; associated: N. that which concurs; contributory cause. CONCUR′RENTLY, ad. *-lĭ*. CONCUR′RENCE, n. *-rĕns*, agreement or union in action or opinion; consent.—SYN. of 'concur': to agree; accord; suit; coincide; unite; combine; conspire; approve;—of 'concurrence': union; conjunction; combination; agree-

ment; consent;—of 'concurrent, a.': uniting; meeting; accompanying; united; coincident; agreeing; contributing; co-operating; concomitant.

CONCUR'RENT JURISDIC'TION: jurisdiction cumulative, or that may be exercised in the same cause by any one of two or more courts. To prevent the collision which might arise from each of the courts claiming to exercise the right, it has been established as a rule, that the judge who first exercises jurisdiction in the cause acquires a right, *jure præventionis*, to judge in it exclusive of the others. The judge by whose authority an offender is first cited or first apprehended, prevents, and so excludes the other from his right of cognizance. 'This right of prevention plainly appears to be peculiar to criminal jurisdiction. In civil, it is the private pursuer who has the only right of choosing before which of the courts he shall sue.'—Erskine's *Institutes*, b. i. tit. ii. s. 9. Opposed to *concurrent* or *cumulative*, is *privative* jurisdiction. In England, in some cases, which are strictly defined, there is concurrent jurisdiction between the superior and county courts.

CONCUSS, v. *kŏn-kŭs'* [L. *concussus*, shaken violently —from *con*, *quassus*, shaken—*lit.*, to shake violently]: *figuratively*, to settle or put down by shaking, as a speaker and his expressed opinions; in *Scot.*, to force or compel to receive or accept. CONCUS'SING, imp. CONCUSSED, pp. *kŏn-kŭst'*, shaken or driven; compelled to receive. CONCUSSION, n. *kŏn-kŭsh'ŭn* [F. *concussion*, concussion—from L. *concussĭōnem*, a shaking]: a jolting or knocking one against another; the shock caused by two bodies coming into sudden and violent contact; state of being shaken; agitation; in *med.*, a severe injury to some internal organ from a fall or a heavy blow. CONCUSSION FUSE: see FUSE. —CONCUSSION SHELL: see SHELL. CONCUS'SIVE, a. *-kŭs'-sĭv*, having the power or quality of shaking.

CONCUSS'ION, in Medical Science: sudden violent jolt or shock communicated to the brain or to the whole nervous system, as the result of a severe injury, or of collision of the body with some external object, as in a fall, or in the crash of a railway accident. It is usual to distinguish concussion from the more mechanical results of injury, by observing its effect upon the circulation and on the general sensibility; and there can be no doubt that the distinction is well founded, for in the first place death may follow from concussion alone, without any appreciable destruction of texture; and 2dly, concussion may be followed by recovery within a few hours, leaving the local injury entirely unattended by constitutional disturbance; or recovery may be complete, there having been no local injury at all. Under the immediate shock of injury, the patient is usually unconscious and insensible, pale, cold, sometimes shivering, pulseless, or nearly so, the pupils inclining to contraction rather than dilatation, or in some cases natural; the breathing is irregular, slow, feeble, and sighing; the secretions are suspended the stomach often yields up its contents; and the bowels

and bladder may also be evacuated. This state ends either in death, or in gradual reaction, which may pass over into a state of inflammatory fever, with violently excited circulation, and greatly increased heat of the surface. In the treatment of concussion, it is sometimes necessary to have recourse to stimulants; but in general moderate heat applied to the surface, abundant supplies of fresh air, and careful adjustment of the injured parts, are all that is necessary till consciousness is somewhat restored, and the power of swallowing regained; some warm soup should then be given, with a small allowance of wine or other stimulant, proportioned to the age and habits of the individual; and the effect being carefully watched, this treatment may be continued until restoration is complete. If there be danger of failure of the breathing or heart's action, artificial respiration (see RESPIRATION) should be employed without delay, and the patient should be transferred as soon as possible from the place of the accident to a warm and comfortable bed, where the necessary restoratives may be more conveniently used. The connection of the nervous system with the heart, in cases of concussion, is a very curious subject in physiology, and has been the subject of minute investigations by Bichat, Legallois, Wilson Philip, Marshall Hall, and many others.

CONDAMINE, LA: see LA CONDAMINE.

CONDÉ, *kōng-dā'* LOUIS DE BOURBON, Prince DE: 1530, May 7—1569, Mar. 13. He was of a family celebrated in French history, and which takes its name from the town of Condé dept. of Nord. One Godfrey de Condé, about 1200, was in possession of a part of the barony of Condé: his great-granddaughter, Jeanne of Condé, married 1335 Jacques de Bourbon, Comte de la Marche, and the barony of Condé went to their second son, Louis de Bourbon, Comte de Vendôme. Louis de Bourbon, Prince of Condé, was the great-grandson of this second son and in virtue of his blood-relationship to the royal family, he assumed the title of Prince, and is regarded as the founder of the new house of this name. He first distinguished himself under Marshal Brissac. In the dissensions between the houses of Guise and Bourbon, Condé was the soul of his party, which was for the most part Calvinistic or Huguenot. It was he who directed the conspiracy of Amboise, which had for its aim the banishment of the Guises, and the capture of Francis II. On its discovery, he fled to his brother at Nérac, and there projected a plan for securing possession of all the large towns of France, which, however, miscarried, and Condé himself was taken prisoner, and condemned to death; from which fate he was saved by the opportune death of the king. On the accession of Charles IX. to the throne, Condé obtained his liberty and the governorship of Picardy; but the harsh treatment which the Huguenots in general received, drove him into rebellion; and 1562, Apr. 11, he commenced a civil war by the capture of Orleans, Rouen, and other places. Defeated and taken prisoner at the battle of Dreux, in the same year,

he was employed by the victors in concluding a treaty of peace, which lasted only a short time. Condé recommenced hostilities, by a daring but unsuccessful attempt to possess himself of the person of his sovereign (1567, Sep. 28). After the battle of St. Denis, 1567, Nov. 10, a second peace was made; but having reason to believe that Catharine de Medici was plotting against his liberty, he once more renewed the war against the Roman Catholic party, in the beginning of 1569, but was again defeated and taken prisoner at the battle of Jarnac, Mar. 13. While his wounds were being dressed on the field, a captain of the Swiss guard, named Montesquieu, approached and shot him through the head. Condé was of a joyous and amorous disposition. His gallantries were far from being in accordance with the austere character of the religion he professed, and it cannot be doubted that the feeling of political rivalry to the house of Lorraine, which animated the Bourbon family, explains the career of Condé quite as much as his religious convictions.

His son, HENRI I. DE BOURBON, Prince de Condé (1552–88), escaped the massacre of St. Bartholomew on a promise to renounce Protestantism Afterward he raised troops and joined the Prot. force He died from poison.

CONDÉ, LOUIS II. DE BOURBON, Prince DE, commonly termed 'the great Condé' · 1621, Sep. 8—1686, Dec. 11; great-grandson of Louis (1530–69). In youth (1640–42), he took part in the sieges of Arras and Perpignan, and commanded the army against the Spaniards in the Netherlands, where he almost extirpated the foe in the battle of Rocroi, 1643, May 19. In the autumn, he was sent to Alsace to support Turenne; and in the engagements 1644, Aug. 3, 5, he defeated the Bavarian general Mercy near Freiburg, and so won for France a considerable portion of Germany. By the death of his father, 1646, Condé became the head of his family, and next to the Duke of Orleans, was the highest personage in the state. This pre-eminence excited the envy of Cardinal Mazarin, who however, 1648, intrusted Condé with the command of the army in the Netherlands. Here the prince captured Ypres, and gained the battle at Lens, but was called back to Paris by the war of the Fronde (q.v.), which had just broken out. In this contest, Condé at first sided with the court, while his brother, Prince of Conti, and his sister, the celebrated Duchess of Longueville, took the part of the *Frondeurs* After the court had secretly escaped from Paris (1640, Jan. 6), Condé concluded a treaty which insured the return of the court to Paris in August. But as this service met no adequate thanks, Condé, who was the haughtiest Frenchman of his age, soon became more violently rebellious than the Frondeurs themselves, at least in his language and deportment. Cardinal Mazarin consequently arrested Condé, with his brother and the Duke of Longueville; but was soon compelled to release him, on account of the threatened

operations of Turenne and the Fronde. Though Condê now enjoyed the favor of the people, his relations with the court were unfriendly even after Mazarin had been banished, and when Louis XIV. assumed the government, 1651. He therefore renewed the war, and is by some supposed to have had the ambitious view of obtaining the supreme power. At the head of troops collected in the Netherlands, he gained the battle of Bleneau, 1652, Apr., and immediately marched upon Paris, while Turenne, who had remained steady in his loyalty, advanced to defend the court. A bloody but indecisive struggle took place in the streets of Paris. Many of Condé's ablest adherents, however, were killed, and the Frondeurs began to give in. A treaty was drawn up, to which most of them agreed, but the proud impracticable Condé would have nothing to do with it; furious at the defection of so many of his friends, he went into Champagne to gather troops, and after a fruitless effort to seize Paris, he left the country, and on the formal outbreak of war between France and Spain, became generalissimo of the Spanish forces, but was unable to gain the advantage over Turenne. When the peace of the Pyrenees was concluded between France and Spain, it was thought advisable to enter into friendly relations with the brilliant traitor. Condé was therefore pardoned, and reinstated in his former honors. The war having been renewed by Spain, 1673, he again commanded the French in the Netherlands. After Turenne's decease, he held the command in Germany, but was ultimately so disabled by gout, that he had to resign his post. He now retired to his estate of Chantilly, where he gave his remaining years to literature (for which, in his early years, he had exhibited a strong predilection), the society of friends, and religious exercises. He died at Fontainebleau. The Prince of Condé had a superior intellect and great strength of character, associated with pride. Though an able commander, he was disliked by the soliders, on account of his severity.—Mahon, *Life of the Great Condé* (1840).

The last prince of the house of Condé was Louis Henri Joseph de Bourbon, 1756–1830, who was wounded at the siege of Gilbraltar, 1782, and served in the Condé army in the revolution of 1793: his death was by strangling, supposably suicide.

CONDEMN, v. *kŏn-dĕm′* [L. *condemnārĕ*, to condemn, to blame—from *con*, *demnārĕ*, to bring damage or loss upon: It. *condennare:* F. *condamner*]: to pronounce guilty, or worthy of punishment; to censure; to blame; to sentence to punishment; to declare to be unfit for use or service; to compel the sale of private property for public use. Condemn′ing, imp. *-dĕm′ĭng*. Condemned′, pp. *-dĕmd′*. Condem′nable, a. *-nă-bl*, that may be condemned, blamable. Con′demna′tion, n. *nā′shŭn*, the act of condemning; the act of declaring one guilty; the state of being condemned; carrying condemnation; the cause or reason

for condemning. CONDEM'NATORY, a. *-nă-tėr-ĭ*, tending to, or containing, something worthy of censure. CONDEMNER, n. *kŏn-dĕm'ėr*, one who condemns.—SYN. of 'condemn': to reprove; reproach; upbraid; reprimand; rebuke; chide; animadvert; reprobate; doom; sentence; adjudge.

CONDENSE, v. *kŏn-dĕns'* [F. *condenser*—from L. *condensārĕ*, to condense—from *con*, *densus*, close, thick: It. *condensare*]: to make more close, thick, or compact; to make close by pressure; to compress or reduce into a smaller compass; to grow or become thick: ADJ. thick; close. CONDEN'SING, imp: ADJ. having the power to condense. CONDENSED', pp. *-dĕnst'*. CONDENSE'LY, ad. *-lĭ*. CONDEN'SITY, n. *-sĭ-tĭ*. CONDEN'SER, n. *-sėr*, he or that which; a vessel for condensing vapor. CONDEN'SABLE a. *să-bl*, capable of being condensed. CONDENSATION, n. *kŏn'dĕn-sā'shŭn*, the act of making more dense or compact; the state of being condensed. CONDENSED MILK, milk reduced greatly in bulk and rendered proportionately denser. Gail Borden, residing near New York, in 1853 invented a process for the condensation of milk, which since 1866 has been extensively used in America and Britain. *Note.—Cleanse, dense, condense, dispense, expense, incense, license, manse, prepense, recompense, immense, sense,* and *tense,* with their derivatives, are nearly all the words that end in *nse,* while there are about 700 ending in *nce.*—SYN. of 'condense': to contract: compress; crowd; thicken; constipate; compact; consolidate:—of 'condensed': concise; succinct.

CONDENSER, ELECTRICAL: a device for absorbing and storing electricity. It comprises essentially two conductors separated and insulated from each other. Fig. 1. shows an elementary form of condenser. Two flat plates *a* and *b* are placed near together but separated by the intervening air, each plate being supported by some insulating material such as ebonite or suspended by a silken cord. Plate *a* is connected to the positive brush or pole of Dynamo D while plate *b* is connected to the negative pole. Plate *a* is charged positively while *b* is charged negatively. If the wires from the dynamo be removed, the plates will retain the electricity absorbed by them and if they are connected together the positive plate will discharge to the negative plate.

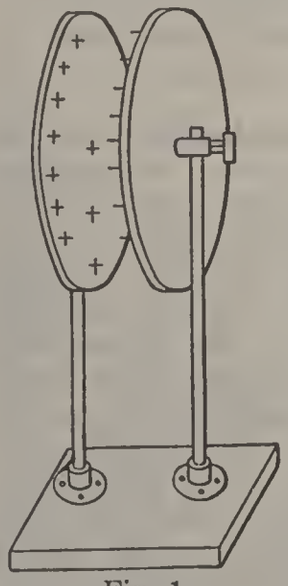


Fig. 1.

The oldest known form of condenser is the Leyden jar, which consists of a glass vessel—usually a large wide-mouthed bottle—coated inside and outside with tinfoil. These inner and outer coatings serve as the two plates. The separating medium is glass instead of air.

CONDENSER.

The capacity of a condenser to store up electricity depends directly on (1) the areas of the two plates; (2) on the character of the dielectric (or insulating material) between them, and (3) inversely on their distance apart. The capacity is given by the formula $F = \frac{AxK}{4.452xtx10^{12}}$ in which F = capacity in Farads (see ELECTRICAL UNITS) A = area of *one* of the two plates in square inches. K = a factor depending on the character of the dielectric and called the Specific Inductive Capacity of the dielectric (see CAPACITY, SPECIFIC INDUCTIVE.) T = the distance apart of the plates in inches.

A farad being much too large a unit for commercial work, the micro-farad or one millionth of a farad is the unit employed in practice. For this unit the formula becomes $M\,F = \frac{AK}{4.452xtx10^{6}}$

In order to produce a condenser of large capacity it is necessary to use a large area of plates; to separate them

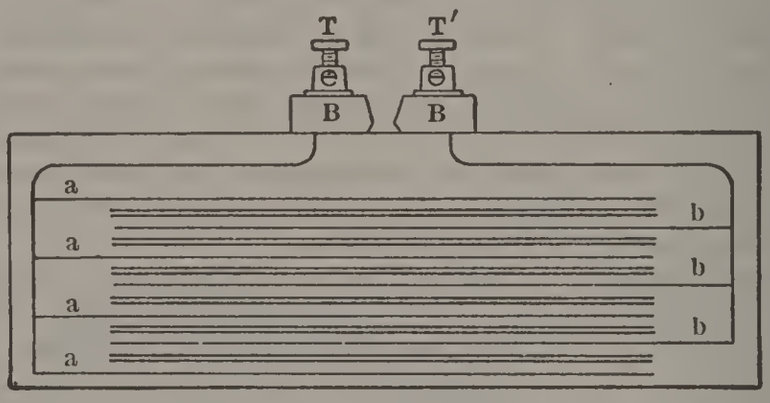


Fig. 2.—Condenser, ordinary Type (Section).

by a dielectric having a high specific inductive capacity and to bring the plates as close together as possible. In practice, condensers are made of many sheets of tinfoil piled up in layers with thin, paraffined paper laid in between each pair of sheets. Half the number of sheets (each alternate one) are joined together at one edge and the other half are joined together at the other edge. The sheets so joined act as if they were one sheet, being in electrical connection and thereby allowing the electric charge to distribute itself equally over all of them. Fig. 2 shows the general arrangement of such condensers. Since each leaf of foil is active on *both* sides, the area to be taken in computing the capacity is equal to the total number of plates multiplied by the length x breadth of each plate.

The factors K—which in reality are the relative capacities obtainable with a given set of plates and different dielectrics between them, air being taken as the unit, = 1.00

The various values may be found by referring to CAPACITY, SPECIFIC INDUCTIVE.

CONDENSING STEAM-ENGINE: see STEAM-ENGINE.

CONDER, n. *kŏn′dėr* [F. *conduire*, to conduct or guide]: he who stands upon a high place near the coast, at the time of herring fishing, to make signs to the fishers which way the shoal passeth, which may better appear to one standing upon a high cliff, by a kind of blue color that the fish causeth in the water, than to those in the ships;' one who gives directions to the helmsman of a ship.

CONDESCEND, v. *kŏn′dĕ-sĕnd′* [F. *condescendre*—from L. *con*, *descenděrĕ*, to descend: It. *condescendere*]: to stoop or descend; to do some act of courtesy or kindness to an inferior as if an equal; to submit; to yield. CON′DESCEND′ING, imp.: ADJ. affable; courteous. CON′DESCEND′ED, pp. CON′DESCEN′SION, n. *-sĕn′shŭn* [L. *con*, *descĕnsĭōnĕm*, a going down, a descending]: a voluntary relinquishment of rank; the act of putting one's self on a level with inferiors; courtesy. CON′DESCEND′INGLY, ad. *-lĭ*. CON′DESCEN′DENCE, n. *-dĕns* [F. *condescendance*—from L. *con*, *descensus*, a descending]: in *Scot. law*, a distinct written statement of the facts in dispute, to be laid before the court; a written pleading. CONDESCENDENCE AND CLAIM: see MULTIPLEPOINDING.—SYN. of 'condescend': to submit; yield; stoop; deign; vouchsafe; descend; relinquish.

CONDÉ-SUR-NOIREAU, *kōng-dā′sür-nwâ-rō:* town in France, dept. of Calvados, at the union of the Durance and the Noireau, 25 m. s.s.w. of Caen. It is an old place, with dark heavy houses. Its manufactures are cottons, cutlery, and leather; and it has extensive trade in cattle, honey, etc. Pop. about 7,000.

CONDICT, *kŏn′dĭkt*, JOHN: 1755–1834, May 4: surgeon. He served as a surgeon in the army during the revolutionary war; was a member of the N. J. legislature several years; member of congress from that state 1799–1803; U. S. senator 1803–17; and member of congress again 1819–21.

CONDIGN, a. *kŏn-dīn′* [F. *condigne*, condign, appropriate—from L *condignus*, wholly deserving—from L. *con*, *dignus*, worthy]: thoroughly deserved as penalty for a wrong; merited—applied to punishment. CONDIGN′LY, ad. *-lĭ*, suitably according to deserts; by way of example or warning. CONDIGN′NESS, n. CONDIG′NITY, n. *-dĭg′nĭ-tĭ*, merit; desert.

CONDILLAC, *kōng-de-yâk′*, ETIENNE BONNOT DE MABLY DE: 1715–1780, Aug. 3; b. Grenoble: French philosopher. In early youth, his delicate health delayed his education. In 1746, he published his *Essai sur l' Origine des Connaissances Humaines*, a work which derives all thought and knowledge from the exercise of the senses. It was intended to carry out the principles of Locke, which were misunderstood and misrepresented by Condillac as entirely based on sensationalism. To refute various metaphysical theories Condillac wrote a *Traité des Systèmes* (1749). In 1754, appeared his *Traité des Sensations*—

a work supplying the details of the sensational theory. Condillac supposes a statue organized within like a man, but its body—so to speak—being composed of marble, hinders it from possessing any sensibility. Condillac further supposes himself to have the power of endowing the statue with one sense after another, until it becomes perfectly a human being, and so endeavors to show that as it would then possess exactly the same kind of ideas as ourselves—and yet while destitute of sensations, possessed no ideas—it logically follows that ideas spring exclusively from sensations. In all his writings, Condillac used an acute analysis, and, as consistently as was possible, adhered to the extreme theory of sensationalism. Condillac passed his life mostly in retirement, and died at his estate near Beaugenci.

CONDIMENT, n. *kŏn'dĭ-mĕnt* [L. *condimen'tum*, seasoning: It. *condimento:* F. *condiment*]: seasoning for food; sauce; pickle. The greater part of condiments are necessary for the proper functions of the alimentary system, and besides gratifying the appetite, minister, more or less, to the wants of the structure. The principal condiments are saline substances, such as common salt; acidulous, such as acetic acid or vinegar; oily, such as butter and olive-oil; saccharine, such as sugar and honey; and aromatic and pungent, such as mustard, ginger, pepper, and pickles. The members of the last class owe their characteristic properties to the presence of a volatile oil or resin.

CONDITION, n. *kŏn-dĭsh'ŭn* [F. *condition*—from L. *conditĭōnem*, external position, situation]: a particular mode or state of being; temperament or disposition of body or mind; order, rank or quality; terms of agreement; something laid down as essential. CONDITION in Athletics: see TRAINING: V. to lay down as essential; in *OE.*, to make terms; to stipulate. CONDI'TIONING, imp. CONDI'TIONED, pp. *-ŭnd:* ADJ. having certain qualities—preceded by such words as *good, well, bad;* in *metaph.*, having conditions or relations; not absolute. THE CONDITIONED, in *metaph.*, the state of having conditions or relations; the state of not being absolute. CONDI'TIONAL, a. *-ŭn-ăl,* containing or depending on certain terms; not absolute; hypothetical. CONDI'TIONALLY, ad. *-lĭ,* with certain limitations; under certain stipulations. CONDI'TIONAL'ITY n. *-ăl'ĭ-tĭ,* the quality of being conditional or limited.—SYN. of 'condition': state; circumstance; situation; incident; event; occurrence; stipulation; station; case; plight; predicament; article; terms; arrangement; provision.

CONDITION, in Law: some action or state of facts laid down as essential to the fulfilment of an engagement made. The word denotes a features of peculiar importance in the real property law of England, as forming the foundation upon which the right of alienation of land, as well as the system of entails and that of mortgages in that country was raised. Originally, a gift of an estate to a tenant (or vassal) by the lord of the fee did not convey

more than a life-estate; and when a gift was made to a man and the heirs of his body, it was held that it was a gift upon condition that he had heirs of his body. But if the condition was performed by his having children, although they might all die before his own death, the judges held that his estate became absolute, to the effect that he might aliene the land, and so bar not merely the succession of his issue, but the right of the lord in default of issue, although, if he did not alien, the lord would recover in the event of the tenant's death without issue. But it came afterward to be held that a gift to a man and the heirs of his body conferred what is called an estate tail, which might at once, by certain forms, be converted into an absolute estate, independent of the birth of issue: see ENTAIL.

In the law of Britain and America generally, a mortgage is an estate given to the mortgagee upon condition that he restores it upon payment of a fixed sum borrowed by the mortgager. This is an example of an estate upon condition *expressed*. An estate attached to an office is an estate in the holder of the office upon condition *implied*, that he shall perform its duties. A condition may also be either *precedent* or *subsequent:* in the former case, the gift does not take effect until the condition is performed; in the latter, it becomes void when the condition occurs. The right to take advantage of a condition subsequent cannot be bestowed on a stranger, but can only be reserved to the grantor and his heirs, though after such reservation it may be assigned to a stranger. Conditions incapable of performance, or contrary to law, are void; and if such a condition is precedent, it makes the gift void; if subsequent, the estate becomes absolute in the tenant. But if a condition become illegal, or impossible, subsequently to the making of the grant, it has a different effect, according as the effect is produced by statute or by other circumstances. If by statute, the party bound to perform the condition is relieved from it; if by other circumstances, he loses his right, as being unable to perform the condition.

In contracts, conditions which are *mala in se* render the contract void; but it is otherwise if the condition is opposed merely to an arbitrary rule of law, in which case the condition only is void, and the contract subsists. In legacies a similar rule prevails. But in the case of legacies, a condition impossible of performance is generally taken *pro non scripto*—whereas in contracts, it commonly annuls the claim of the party who has bound himself to its performance.

CONDITION AND CONDITIONAL in logic: a condition is whatever is entertained, or put forward, by way of supposition (e.g. If it rain tomorrow). If the condition or conditions hold good, this establishes the holding good of what is called, in distinction, the conditioned, or the consequent. Thus any proposition that states the dependence of one situation upon another supposed

situation, is in form *conditional;* and any reasoning employing this relation of dependence is conditional. A distinction is made between a *necessary* (essential or indispensable) condition and a *sufficient* condition. E.g. in the conditional statement 'If *a* then *b*' when the only condition of *b* is *a*, then we have the former; but when there are other conditions besides *a* that would make *b* good, then we have the latter. See ANTECEDENT and CONSEQUENT.

CONDI'TIONED, THE PHILOSOPHY OF THE: phrase brought into use by Sir William Hamilton, to express the inability of the human mind to conceive or reason respecting the Absolute and the Infinite. In a dissertation on this subject (*Discussions in Philosophy*, p. 1), he criticises and endeavors to refute the opposite position as maintained by Cousin—a modification of the previous doctrine of Schelling—that 'the Unconditioned, the Absolute, the Infinite, is immediately known in consciousness, and this by difference, plurality, and relation.'

This doctrine of Sir William Hamilton has been raised into especial importance by Mr. Mansel in his *Bampton Lectures*, and has been developed far from its originator's intent in recent systems of agnosticism.

The fundamental ideas involved in this view are certain observed facts with reference to the human consciousness; with certain deductions from those facts which have gained wide acceptance. Thus, it is deemed a general law of our mental constitution, that change of impression is essential to consciousness in every form. Notable examples are cited to show that an unvarying action on the senses fails to give any perception whatever. Take the pressure of the air on the surface of the body. Here, it is said, we have an exceedingly powerful effect upon one of the special senses. The skin is under an influence exactly of that nature that wakens the feeling of touch, but no feeling comes. Withdraw any portion of the pressure, as with a cupping-glass, and sensibility is developed. A constant impression is thus, to the mind, the same as a blank. Our partial unconsciousness of our clothing is connected with the constancy of the object.

The necessity of change in order to produce feeling or consciousness of any sort, must apply to the special kind of consciousness that we call knowledge. To know light, is to pass from its presence to its absence, or the opposite; it is claimed that everlasting, unvarying luminosity, in an eye always awake, would not be known to the human mind. Certainly, it is transition that develops knowledge whether or not it originates it; thence is deduced the wide and important statement, that knowledge *never can be of one property alone;* there must always be at least two properties in every act of knowing. We may say that we know light; but in so doing we also know darkness, and we infer that we could not know either by itself. When we touch clay and marble, we know hard and soft; but if we had never touched a soft body, it is

inferred that we should have no conception of a hard one. Living in one constant temperature, like the fish in tropical seas, it is asserted that we should know neither heat nor cold; passing from a high temperature to a low, or from a low to a high, we know both; and such is the alternative presented in every case to the human understanding. Thus is deduced as a great fundamental law of the human mind, *the relativity of knowledge or of cognition.*

Mr. Mansel, accordingly, disputes the possibility of our conceiving the infinite, by showing that such a conception passes the limits of human consciousness. The following extract will show his mode of reasoning: 'Now, in the first place, the very conception of consciousness, in whatever mode it may be manifested, necessarily implies *distinction between one object and another.* To be conscious, we must be conscious of something; and that something can only be known as that which it is, by being distinguished from that which it is not. But distinction is necessarily limitation; for, if one object is to be distinguished from another, it must possess some form of existence which the other has not, or it must possess some form which the other has. But it is obvious that the infinite cannot be distinguished, as such, from the finite, by the absence of any quality which the finite possesses; for such absence would be a limitation. Nor yet can it be distinguished by the presence of an attribute which the finite has not; for, as no finite part can be a constituent of an infinite whole, this differential characteristic must itself be infinite, and must at the same time have nothing in common with the finite. We are thus thrown back upon our former impossibility.'—Lecture Third.

'A second characteristic of consciousness,' according to Mr. Mansel, 'is, that it is only possible in the form of a *relation.* There must be a Subject, or person conscious, and an Object, or thing of which he is conscious. There can be no consciousness without the union of these two factors; and, in that union, each exists only as it is related to the other. The subject is a subject, only in so far as it is conscious of an object; the object is an object, only in so far as it is apprehended by a subject; and the destruction of either is the destruction of consciousness itself. It is thus manifest that a consciousness of the absolute is equally self-contradictory with that of the infinite. To be conscious of the absolute as such, we must know that an object which is given in relation to our consciousness, is identical with one which exists in its own nature, out of all relation to consciousness. But to know this identity, we must be able to compare the two together; and such a comparison is itself a contradiction. We are, in fact, required to compare that of which we are conscious, with that of which we are not conscious, the comparison itself being an act of consciousness, and only possible through the consciousness of both objects.'

The author then lays down a third condition of consciousness—namely, relation to *time.* Everything con-

ceived by us is conceived as under the two manifestations of *succession* and *duration*, from which he endeavors to show 'that an act of *creation*, in the highest sense of the term—that is to say, an absolutely first link in the chain of phenomena, preceded by no temporal antecedent—is to human thought inconceivable. To represent in thought the first act of the first cause of all things, I must conceive myself as placed in imagination at the point at which temporal succession commences, and as thus conscious of the relation between a phenomenon in time and a phenomenon out of time. But the consciousness of such a relation implies a consciousness of both the related members; to realize which, the mind must be in and out of time at the same moment.'

And, further: 'Subordinate to the general law of time, to which all consciousness is subject, there are two inferior conditions, to which the two great divisions of consciousness are severally subject. Our knowledge of body is governed by the condition of *space*, our knowledge of mind by that of *personality*. I can conceive no qualities of body save as having a definite local position; and I can conceive no qualities of mind save as modes of a conscious self.'—Lecture Third.

By the application of those four conditions or limitations of the human consciousness—distinction, relation, succession, and duration in time, and personality as regards the conception of mind—it is Mr. Mansel's purpose to demolish the foundations of the metaphysical theology of former ages, which was largely conversant with proofs *a priori* of the infinity and the absolute existence of a Deity. According to him, a rational theology is impossible. 'Our whole consciousness manifests itself as subject to certain limits, which we are unable, in any act of thought, to transgress. That which falls within these limits, as an object of thought, is known to us as *relative* and *finite*. The *absolute* and the *infinite* are thus, like the *inconceivable* and the *imperceptible*, names indicating, not an object of thought or of consciousness at all, but the mere absence of the conditions under which consciousness is possible. The attempt to construct in thought an object answering to such names, necessarily results in contradiction—a contradiction, however, which we have ourselves produced by the attempt to think—which exists in the act of thought, but not beyond it—which destroys the conception as such, but indicates nothing concerning the existence or non-existence of that which we try to conceive.'

These arguments excited much alarm, as tending to overthrow all *a priori* proofs of the existence of Deity, and as a consequence the whole traditional system of received divinity; but they were really aimed against rationalism or rational theology. The attempt to construct a conception of the absolute or infinite, he held, 'necessarily results in contradiction: it proves our own impotence; and it proves nothing more.' In the first part of the *First Principles* Herbert Spencer adopts this doctrine of Hamilton and Mansel: see ABSOLUTE: INFINITE.

CONDOLE, *a.* *kŏn-dōl′* [L. *con*, together; *dolērĕ*, to feel pain, to grieve]: to grieve with another in distress or misfortune; to sympathize. CONDO′LING, imp. CONDOLED′, pp. *-dōld′*. CONDO′LATORY, a. *-lă-tėr-ĭ*, expressing condolence. CONDO′LER, n. one who. CONDOLE′MENT, n. in *OE.*, sorrow; grief. CONDO′LENCE, n. *-lĕns* [F. *condoléance*, condolence—from F. *doléance*, complaint, grief]: grief or pain of mind excited and expressed by the distress or misfortunes of another; expression of sympathy by friends on the occasion of a loss or misfortune.—SYN. of 'condolence': sympathy; commiseration; pity; compassion.

CONDOM, *kōng-dōng′:* town of France, dept. of Gers, pleasantly situated on a height on the river Baise, here crossed by two bridges, 25 m. n.n.w. of Auch. The town is very old, founded 721, is irregularly built, but has handsome surburbs. It has a handsome Gothic church, an exchange, and two hospitals. There is considerable trade in grain, flour, wine, and brandy, and manufactures of cotton and mixed fabrics, cotton yarn, and earthen ware. Condom was formerly cap. of an extensive district, now comprised in the departments of Gers, Landes, and Lot-et-Garonne. Bossuet was at one time Bp. of Condom. Pop. 5,000.

CONDONE, v. *kŏn-dōn′* [L. *condōnārĕ*, to pardon—from *con*, *dōno*, I give: It. *condonare*]: to overlook an offense; to forgive a violation of the marriage-vow; said of offenses generally, but in law restricted to adultery, and said of either husband or wife. CONDO′NING, imp. CONDONED′, pp. *-dōnd′*. CONDONATION, n. *kŏn′dō-nā′shŭn* [L. *condonātĭōnem*, a going away]: the act of pardoning; forgiveness, expressed or implied, on the part of the husband or the wife, for a violation of the marriage-vow—put forward as a legal defense against an action for divorce on the ground of adultery.

CONDOR, n. *kŏn′dŏr* [Sp. *condor*—from Peruvian *cuntur*], (*Sarcoramphus gryphus*): the great vulture of the Andes, largest of known flying birds. Its dimensions, however, were for a long time greatly exaggerated. It is not always much larger than the *lämmergeyer* of the Alps, being sometimes scarcely more than four ft. long, and its expanse of wings about nine ft., though these dimensions are often considerably exceeded, and the expanse of wings reaches fully 14 ft. The wings are long, and extremely powerful; the tail short, and wedge-shaped; the general color black, brightest in old males, the young being of a brownish color, which has given rise to a notion that there are two species; the males are also distinguished by having great part of the wings white. Around the lower part of the neck of both sexes there is a broad white ruff of downy feathers, above which the skin is bare, and exhibits many folds. The head of the male is crowned with a large cartilaginous comb, and the neck is furnished with a dilatable wattle. The beak is thick and strong, straight at the base, but the upper mandible strongly curved at the

extremity. The condor feeds mostly on carrion. Its voracity is enormous. Tschudi mentions one in confinement at Valparaiso which ate 18 lbs. of meat in a single day, and seemed next day to have as good an appetite as usual. Condors often gorge themselves so that they cannot fly, and if attacked, must disgorge in order to escape. They inhabit regions 10,000 or 15,000 ft. above the level of the sea, where they breed, making no nest, but laying their eggs on the bare rocks, and where they are usually seen in small groups. To these haunts they return, after their descents into the plains for food. The height to which the condor soars in the air exceeds that of any other bird, and is said to be almost six perpendicular miles above the level of the sea, or nearly six times the ordinary height of the clouds.—To the same genus with the condor, distinguished by the cartilaginous comb, bare neck, and peculiar shape of bill, belong the King Vulture, or King of the Vultures (*S. papa*), of the warm parts of America, and the California Vulture (*S. Californianus*). The king of the vultures is about the size of a goose, and derives its name from its driving away other vultures from prey at its pleasure. Its plumage is finely colored, reddish above, white beneath, with bluish-gray ruff, and black quills and tail.—The birds of this genus have no voice, and make only a sort of weak snorting.

CONDORCET, *kōng-dor-sā'*, Jean Antoine Nicolas de Caritat, Marquis de: 1743, Sep. 17—1794, Apr. 9; b. Ribemont, near St. Quentin, dept. of Aisne, France: author. He studied at the college of Navarre; and by his *Essai sur le Calcul Intégral* (afterward given in an extended form in his *Essais d'Analyse*), gained for himself, at an early age, a seat in the Acad. of Sciences. With ease and remarkable ingenuity Condorcet treated the most difficult problems of mathematics; but though deserving high praise, his powers lay rather in suggestion than in rigorous demonstration. After the appearance of his *Eloges des Académiciens Morts avant* 1699 (Paris 1773), he was made sec. of the Acad., 1777. His theory of comets gained, in the same year, a prize in the Berlin Academy. In concert with Turgot, he was induced to subject the system of the economists to a close examination, and was led by D'Alembert to take active part in the *Encyclopédie*. In all his works—as, for example, in the *Eloges et Pensées de Pascal*—we find noble views of human destiny, and evidences of a benevolent disposition. At the Revolution, he was elected member for Paris in the legislative assembly, of which he was president 1792. In the national convention, as deputy for the dept. of Aisne, he mostly voted with the Girondists, and shared in the downfall of that party. Accused, 1793, Oct., he concealed himself, and consequently was outlawed. A generous lady, Madame Verney, had the courage to provide for him a hiding-place, where he remained for some months, and in very miserable circumstances wrote his most remarkable work, the *Esquisse des*

Progrès de l'Esprit Humain. Having quitted his concealment, he was arrested at Clamart, sent to Bourg-la-Reine, and cast into prison. The next morning he was found lying dead on the floor. He had, it is believed, poisoned himself. His collected works (exclusive of his mathematical essays) were edited by Garat and Cabanis (21 vols. Paris, 1804).

CONDOTTIERI, *kon-dot-yā′rē:* name given in the 14th c. to the leaders of certain bands of military adventurers who, for booty, offered their services to any party, in any contest, and often practiced warfare on their own account, purely for the sake of plunder. These mercenaries were called into action by the endless feuds of the Italian states during the middle ages. Among the most celebrated of their leaders were Guarnieri, Lando, Francis of Carmagnola (about 1412), and Francis Sforza (about 1450). The last-mentioned made himself Duke of Milan. The *Compagnies Grandes* in France, during the 14th c., resembled the bands led by the Italian condottieri. They originated in the long, bloody wars between France and England. The mischief done by them became so intolerable, that in several parts of the country the peasantry armed themselves, and under the name of *pacifères*, formed associations against the plunderers. Nevertheless, those French condottieri were so powerful that, in 1361, they routed the king's forces which had been sent against them, at Brignais, near Lyon, and slew the Constable of France, Jacques de Bourbon; but the Constable du Guesclin persuaded them to seek their fortune in the Spanish service.

CONDUCE, v. *kŏn-dūs′* [L. *condūcĕrĕ*, to bring or lead together—from *con*, *dūcĕrĕ*, to lead: It. *conducere:* F. *conduire*]: to lead or tend to; to help forward some object or purpose; to contribute. CONDU′CING, imp. CONDUCED′, pp. *-dūst′*. CONDUCIBLE, a. *-sĭ-bl*, leading or tending to. CONDU′CIBLY, ad. *-blĭ*. CONDUCIVE, a. *kŏn-dū′sĭv*, that may contribute; having a tendency to promote.—SYN. of 'conduce': to contribute; advance; promote; forward; tend; further; lead; guide.

CONDUCT, n. *kŏn′dŭkt* [L. *conductus*, led together—from *con*, *ductus*, led: F. *conduite*, behavior]: the act of leading; personal behavior; mode of life; management; guidance; escort or guard; the title of the clergyman who says prayers at Eton; in *OE.*, a conductor or guide: V. *kondŭkt*, to lead together; to bring along or guide; to behave, as one's self; to direct; to point out the way; to manage; to lead or command; to transmit. CONDUC′TING, imp. CONDUC′TED, pp.: ADJ. in *phys.*, lead or transferred from one body to another, or from particle to particle—applied to heat as opposed to radiation. CONDUC′TOR, n. masc. CONDUC′TRESS, fem. one who. CONDUC′TION, n. *-shŭn*, transmission from one body to another, or through the same body, as heat (see HEAT); transmission through a conductor. CONDUC′TOR, n. one who accompanies an-

other to show him the way; a manager or director; leader of a band of musicians, in Germany called by the more expressive name of Dirigent; one who attends to the passengers in a car or omnibus; a body that offers little resistance to the passage of electricity or heat, etc.; a lightning-rod. CONDUC'TIBIL'ITY, n. *-tĭ-bĭl'ĭ-tĭ*, capacity of receiving and transmitting. CONDUC'TIVE, a. *-tĭv*, leading; transmitting. CONDUC'TIV'ITY, *-tĭv'ĭ-tĭ*, the power or quality of conducting or giving passage to. CONDUC'TORY, a. *-tėr-ĭ*, used in conducting. SAFE-CONDUCT, a written pledge or guaranty of safety from the supreme or ruling authority, especially to one travelling through a disturbed country or through the lines of an army in the field.—SYN. of 'con'duct n.': deportment; behavior; carriage; management; demeanor; guidance; convoy; guard; —of 'conduct' v.': to lead; guide; direct; escort; convoy; introduce; attend; control; manage; regulate; carry; behave; act.

CONDUCT, in philosophy: a person's action, in so far as it is subject to his will and can be given a moral status as good or bad, is called conduct. Reflex actions and other forms of uncontrollable movements are not conduct. Writers on ethics have sometimes held that their science deals primarily with conduct, that is, with voluntary action, and sometimes that its concern is with character and the motives to action. As a matter of fact these two aspects of morality are so intimately interwoven that every ethical theory, whatever its alleged intention, has to take cognizance of both.

CONDUCTORS, in the Royal Artillery: those artillerymen who have charge of the ammunition-wagons in the field.

CONDUCTORS, ELECTRIC: any substances over or through which electricity travels. Metals are the best conductors, and next follow carbon, graphite and electrolytes. The highest conductivity of any known substance is that of silver to which all other conductors are compared to describe the value of their conductivity. The conductivity of silver being taken as 100 per cent. the conductivity of the principal metals is as follows:

Silver	100. per cent.
Copper	99.5 " "
Gold	78. " "
Aluminum	54. " "
Zinc	30. " "
Cadmium	23.7 " "
Platinum	18. " "
Iron	16.8 " "
Tin	12.3 " "
Lead	8.9 " "
Nickel	7.9 " "
Mercury	1.6 " "

These values are for temperatures of from 40 to 60° F. As the temperature increases the conductivity decreases—in some instances very rapidly. For instance the conductivity of copper decreases 1 per cent. for each 4 degrees rise in temperature.

CONDUIT, n. *kŭn'dĭt* or *kŏn'* [F. *conduit*—from L. *con*, together; *ductus*, led or conducted]: a canal or pipe for the conveyance of water; a channel; a surface-drain.

CONDUPLICATE, a. *kŏn-dū'plĭ-kāt* [L. *con*, together; *duplicātus*, doubled]: doubled; folded upon itself.

CONDYLE, n. *kŏn'dĭl* [Gr. *kon'dulos*, a knuckle, a knob]; a rounded projection at the end of a bone forming the surface by which the bone articulates with another; one of the articular surfaces by means of which the skull articulates with the vertebral column; a knuckle. CON'DYLOID, a. *-dĭ-loyd* [Gr. *eidos*, form]: resembling or carrying a condyle—generally applied to the projection by which the lower jaw is articulated with the head.

CONDY'S FLUID: see MANGANESE.

CONE, n. *kōn* [F. *cône*—from L. *cōnus*, a cone: Gr. *kōnos*: It. *cono*, a cone: comp. Skr. *cana*, a whetstone; L. *cunĕŭs*, a wedge]: a figure broad and round at the bottom, gradually lessening in circumference, like a sugar loaf; the fruit of the fir, pine, etc., consisting of overlapping spirally disposed scales, beneath which are the obscure reproductive organs; a shell very common in warmer seas. CONIC, a. *kŏn'ĭk*, or CONICAL, a. *kon'ĭ-kăl*, having the form of a cone; cone-shaped. CON'ICALLY, ad. *-lĭ*. CONICS, n. plu. *kon'ĭks*, that part of geometry which treats of the properties of conical figures and the curves which arise from their sections. CONIC SECTIONS, curves formed by the intersections of a plane and a cone—viz., the *circle*, the *parabola*, the *hyperbola*, and the *ellipse*. CONIF'EROUS, a. *kō-nĭf'ėr-ŭs* [L. *fero*, I carry]: in *bot.*, bearing cones. CONIFER, n. *kō'nĭ-fėr*, CONIFERÆ, n. plu. *kō-nĭf'ėr-ē*, the nat. ord. of trees or shrubs which bear cones, including the pine, fir, and juniper. CONIFERIN, n. *kō-nĭf'ĕr-ĭn*, a substance obtained from the inner bark of coniferous trees, containing sugar and the substance identical with that which produces the aroma of vanilla. CONIFORM, a. *kō'nĭ-fawrm* [L. *forma*, a shape]: shaped like a cone. CONOID, n. *kō'noyd* [Gr. *eidos*, a form]: that which resembles a cone; in *math.*, a solid formed by the revolution of a conic section about its axis; such are the sphere, paraboloid, ellipsoid, and hyperboloid: ADJ., also CONOI'DAL, a. *-noy'dăl*, pertaining to a conoid; nearly conical. CONOI'DIC, a. *-dĭk*, or CONOI'DICAL, a. *-dĭ kăl*, pertaining to or like a conoid. CONE-FLOWER, a plant, genus *Rudbeckia*, order *Compositæ*. CONE GEAR, a mode of transmitting motion, consisting of two cones rolling together. CONE-HEAD, the name given by gardeners to Strobilanthes, a genus of *Acanthaceæ*. CONE-PULLEY, an arrangement for varying the speed of the bobbin in spinning-machines, giving them a gradually decreasing velocity as the roving is wound thereon, so as to keep an equal strain on the roving. CONE-WHEEL, a wheel with several applications: (1) Two frustums are in opposition, one having teeth on its face and the other a spirally arranged row of studs. The toothed wheel at its small end acts upon studs on the larger portion of the opposite wheel and conversely. The effect

is to confer a regular variability of rotation to the stud-wheel from a regular rotation of the driving frustum. (2) The frustum, being driven by the motor, communicates motion to the wheel above it. This is not intermittent or variable, but is adjustable. The nearer the upper wheel is to the base of the cone, the faster will it rotate, and conversely. CONE-IN-CONE, a. resembling a series of hollow cones, each inserted in the cone next preceding it in size, like the small pill-boxes at a druggist's. This structure is occasionally found in coal, limestone, etc.

CONE (*strobilus*), in Botany: a fruit-bearing spike covered with scales, each of which has two seeds at its base. Such are the fruits of the *Coniferæ* (fir-cones or fir-tops), from the usual shape of which the name cone is derived; also the fruits of the *Casuarineæ*. The name cone is applied also to the female spike, even when it flower. The scales of true cones, until they separate to allow the dispersion of the seeds, are closely compacted together; in the hop, to the fruit of which the name cone is not applied, though *strobilus* is, they are loose. Some true cones, as those of the *Araucaria*, are far from conical in shape. The fruit of the juniper (*A galbulus*) is a cone of which the scales have become fleshy, so as to form a false berry.

CONE, in Geometry: a conical surface is a curved surface generated by a straight line AV, called the *generatrix*, which moves so as always to meet a given curve AAA,

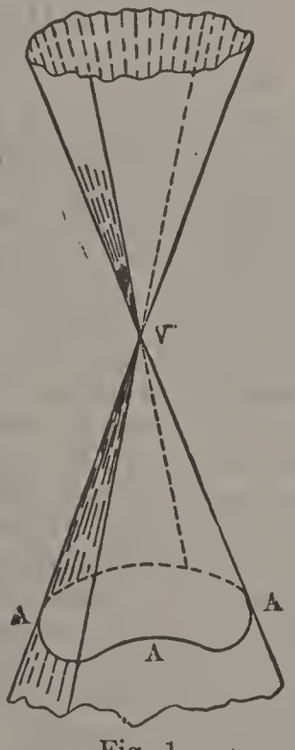


Fig. 1

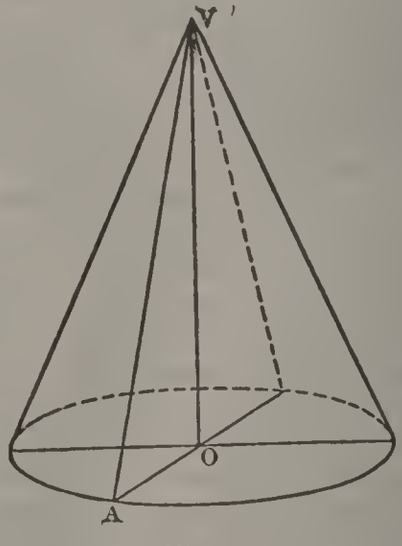


Fig. 2.

called the *directrix*, and to pass through a fixed point V, called the *vertex*, not in the plane of the directrix. As thus defined a conical surface extends to an infinite distance on both sides of the vertex; and the portions of the

surface on opposite sides of the vertex are called *nappes*, one the *lower*, and the other the *upper*. The generatrix in any position is called an *element* of the surface.

A cone is a solid bounded by a conical surface and a plane cutting all the elements of the surface on the same side of the vertex, as V–AAA, fig. 1. The *base* of the cone is its plane surface. The distance from the vertex of a cone to the plane of its base is called the *altitude* of the cone.

A *circular* cone is one whose base is a circle. If the line VO, fig. 2, joining the vertex to the centre of the base is perpendicular to the base, the cone is called a *right circular* cone; if oblique, an *oblique circular* cone.

A right circular cone is often called a *cone of revolution* because it can be generated by the revolution of a right-angled triangle AOV fig. 2, about one of its legs. The hypotenuse VA of the generating triangle is called the *Slant Height*, and the leg VO about which the triangle revolves is the *Axis* of such a cone. There are many varieties of the cone, depending upon the form of the base, etc., but the term is most commonly applied to the cone of revolution.

The curved surface of a cone of revolution is equal to half of the product of the circumference of the base by the slant height. The volume of a cone, having any kind of a closed curve for its base, is equal to one-third of the product of the area of the base by the altitude.

If the point of a cone is cut off by a plane section, the remainder is called a *truncated* cone, or a *frustrum* of a cone, according as the cutting plane is *not parallel*, or *parallel* to the plane of the base

In the higher mathematics a conical surface, as defined above, is called a cone for the sake of brevity.

CONE, *kōn*, Helen Gray, American poet: b. New York City 1859, March 8. Since 1899 she has been professor of English in the New York City Normal College. She is the author of *Oberon and Puck: verses Grave and Gay* (1885); *Baby Sweethearts* (1890); *The Ride to the Lady and Other Poems* (1891).

CONE, Orello, American educator and author: b. 1835, Nov. 16; d. 1905, June 23. He was professor of biblical languages and literature in St. Lawrence University, N. Y., 1865–80; president of Buchtel College, Ohio, 1880–96; and Richardson professor of biblical theology in St. Lawrence University, 1900–5. He published: *Gospel-Criticism and Historical Christianity* (1891); *The Gospel and its Earliest Interpretations* (1893); *Paul, the Man, the Missionary, and the Teacher* (1898); edited *Epistles to the Hebrews, Colossians, Ephesians, Philemon, etc.* (1901); *Rich and Poor in the New Testament* (1902).

CONE, Spencer Houghton, d.d.: 1785, Apr. 30–1855, Aug. 28; b. Princeton, N. J. In early life he was a school-teacher, a law student, and an actor, and played in tragedy several years with success. He withdrew from the stage and bought the *Whig* newspaper, Baltimore. 1812;

was religiously converted 1813, and received into the Bapt. Church 1814, Feb. 4: began preaching in Washington; was elected chaplain to congress 1815, 16; was pastor at Alexandria several years, at the Oliver Street Bapt. Church, New York, 18 years, and then of the First Bapt. Church, New York, till his death. He was highly esteemed throughout his pastoral career, and held many important offices, among them that of pres. of the Bapt. triennial convention 1832, 41; pres. of the American and foreign Bible Soc., 1837–50; and pres. of the American Bible Union from its formation till his death. He received the degree D.D. from Princeton, 1832.

CONEGLIANO, *kō-nāl-yâ'nō:* town of n. Italy, 28 m. n.e. of Venice; on a hill-slope, crowned by an extensive castle, and has a very picturesque appearance. Half-obliterated frescoes adorn the outside of several houses in the town. Conegliano has manufactures of woolen and silks. Pop. 6,500.

CONENCHYMA, n. *kōn-ĕn'kĭ-mă* [Gr. *kōnos*, the cone of the pine; *engchuma*, an infusion, tissue]: tissue composed of conical cells, as in the form of hairs.

CONE-SHELL (*Conus and Conidæ*): genus and family of gasteropodous mollusks, of the order *Pectinibranchiata*, having a shell of remarkably regular conical form; the spire on the base of the cone, and sometimes rising from it to a sharp point, sometimes almost flat; the aperture narrow and straight, without protuberance or fold, extending from the base of the cone to its apex. The head of the animal has a proboscis capable of much extension; the mantle is scanty and narrow, forming an elongated siphon in front; the shell covered with an epidermis These mollusks are carnivorous, they inhabit shores and banks of sandy mud, chiefly within the tropics, a few only occurring in the Mediterranean The shells of many species are very beautiful, and much prized by collectors.—Cone-shells first appear in the chalk, and become more abundant in more recent formations

CONESTOGAS, *kŏn-ĕs-tō'gaz*, or GANDASTOGUES: tribe of Indians of the Iroquois family, Susquehannock division, which formerly owned the region in Penn. now covered by Lancaster co. They were almost constantly at warfare with neighboring tribes, and at one time nearly exterminated the Mohawks. Treaties were made with them, 1701, by William Penn, and in 1742; and what was supposed to be the last of them were murdered by the whites, after they had taken refuge in the jail at Lancaster during an anti-Indian excitement, 1763. The eloquent Logan, whose pathetic speech has been repeated by thousands of school children, was one of their most distinguished chiefs. The tribe were often called Susquehannas. A township, a post village, a creek, and a railroad station in Lancaster co. perpetuate the name Conestogas, as does also a long covered wagon formerly much used by settlers migrating to the states of the central west.

CONEWANGO CREEK, *kŏn-ė-wŏng'go:* stream rising in the n.w. portion of Cattaraugus co., N. Y., traversing Chautauqua co., and flowing in a s. direction into Penn., where, after receiving the waters of the outlet of Chautauqua Lake, it empties, after a course of nearly 80 m., into the Alleghany river at Warren. Conewango creek and its outlets, through the Ohio and Mississippi rivers, furnish a boat navigation from the Gulf of Mexico to within 10 m. of Lake Erie.

CONEY, n. *kō'nĭ:* see CONY.

CONEY ISLAND, *kō'nĭ:* popular summer resort, 10 m. s.e. of New York, in the township of Gravesend, Kings co., N. Y. on the w. end of Long Island. It is separated from the mainland by a narrow and shallow creek connecting Gravesend and Sheepshead bays. Its area is officially given at 5 m. long, e. to w., by one m. wide; but this is liable to material changes by the washing away of the sand by winter storms as well as by the reclaiming and filling in with earth of portions needed for business purposes. It was discovered 1609, was the scene of the first landing of Europeans in the territory of N. Y., and was the burial place of the first white man in all that region. About 1840, it began to be frequented for salt water bathing, and a few rude structures were erected on the w. end, known as Norton's Point. Afterward, it lost repute, and its visitors were far from select. But, about 1874, capital and fashion set in thither, and since then its appearance has been wholly transformed, and it has become one of the most noted resorts in the country. The former barren waste has given way to Manhattan Beach, Brighton Beach, West Brighton, and the West End, teeming with life, beauty, and all manner of attractions. Three great hotels face the Atlantic Ocean, with frontages averaging 600 ft.; elegant parterres of grass and beds of flowers greet the eye; the observatory of the Centennial exhibition has been erected there; numerous amusement resorts have been established, and old Norton's Point, now known as Sea Gate, is now the home station of the Atlantic Yacht Club. Coney Island is reached by boat from New York, electric roads from Brooklyn and Manhattan, and by a superb drive-way 150 ft. wide which connects Prospect park, Brooklyn, with the 'Concourse,' an ocean-side drive and walks one m. long. In 1901 a city park was laid out between Brighton and West Brighton Beaches.

CONFABULATE, v. *kŏn-făb'ū-lāt* [F. *confabuler*, to confabulate—from L. *con*, *fabulor*, I converse, I chat; *fabulātus*, conversed, chatted]: to talk in an easy unrestrained manner; to chat. CONFAB'ULATING. imp. CONFAB'ULATED, pp. CONFAB'ULA'TION, n. *-ū-lā'shŭn*, familiar and easy chat or conversation. CONFAB'ULATORY, a. *-lă-tėr-ĭ*, having the character of an easy and familiar conversation. CONFAB, n. *kŏn'făb*, a familiar contraction of *confabulation*.

CONFARREATION, n. *kŏn-făr'rė-ā'shŭn* [L. *confarrĕātĭō'nem*, a uniting by *far* or bread]: among the anc. Ro-

mans, a form of marriage by the man and woman making an offering of bread in the presence of the pontifex maximus and ten witnesses; marriage by eating bread together. Among the Romans, various priestly offices, such as that of the *Flamen Dialis*, were open only to those who were born of parents thus married.

CONFECT, v. *kŏn-fĕkt'* [L. *confectus*, made thoroughly; *confectĭōnem*, a preparing, a finishing completely—from *con*, *factus*, made]: to preserve with sugar; to form into sweetmeats: N. *kŏn'fĕkt*, a sweetmeat. CONFEC'TING, imp. CONFEC'TED, pp. CONFEC'TION, n. *-fĕk'shŭn* [F.—L.]: anything prepared with sugar; a sweetmeat. CONFEC'TIONER, n. *-ėr*, one who makes sweetmeats. CONFEC'TIONERY or ARY, n. *-ėr-ĭ*, sweetmeats, candies, comfits, and various delicacies made from sugar; the art of preparing them.

CONFEDERATE, v. *kŏn-fĕd'ėr-āt* [L. *confœderātus*, leagued together thoroughly—from *con*, *fœderātus*, leagued together, confederate: F. *confédérer*]: to unite together in a league with others; to ally: N. a person or nation united in a league with others; an ally; an accomplice: ADJ. united in a league; allied by treaty. CONFED'ERATING, imp. CONFED'ERATED, pp.

CONFEDERATE STATES OF AMERICA: the name adopted by the southern states which seceded from the Union and formed a government at Montgomery, Ala., 1861, Feb. 9, comprising South Carolina, Georgia, Florida, Alabama, Mississippi, and Louisiana, with Jefferson Davis of Mississippi President and Alexander H. Stephens of Georgia Vice-President. Texas, Arkansas, Tennessee, North Carolina, and Virginia afterward joined, and Missouri and Kentucky became disputed territory, the Federal Congress and the Confederate each receiving and welcoming delegations claiming to represent those states.

The act of secession was passed by each state in full confidence that the legal right peaceably to secede was assured by the constitution. And if the interpretation of any ambiguous provisions or expressions in any contract is to be governed by the joint intent of the parties at the time of making it, this right to secede must be conceded by all impartial historians

Goldwin Smith, the English historian, has written: 'Few who have looked into the history can doubt that the Union originally was, and was generally taken by the parties to it to be, a compact, dissoluble, perhaps most of them would have said, at pleasure; certainly on breach of the articles of union.'

Henry Cabot Lodge of Massachusetts has written: 'It is safe to say that there was not a man in the country from Washington to Hamilton on the one side, to George Clinton and George Mason on the other, who regarded the new system as anything but an experiment entered upon by the states, and from which each and every state had the right peaceably to withdraw, a right which was likely to be exercised.'

CONFEDERATE STATES OF AMERICA.

In 1803, at the purchase from France of the Louisiana territory, and again in 1812, at the declaration of war with Great Britain, influential and leading public men in New England not only asserted the right of secession, but urged its exercise, in the celebrated Hartford convention (q.v.) in 1814–15.

Nowhere, however, until 1860, was the issue actually made. Had it been made in the earlier days, it would doubtless have been accomplished peacefully. But in all human affairs, political, social, moral, or commercial, there are silently but forever at work forces which make for the survival of the fittest, and the passing away of the unfit; and these forces, when at last a crisis has been reached, declare themselves, and operate with a volcanic power, against which the barriers of no constitution can prevail.

Within the lifetime of a generation the moral sense of a majority of the civilized world had grown to condemn the institution of slavery; and the invention of steam-power, railroads, and telegraphs had begun to knit communities into nations, to their great commercial advantage. The prejudices against slavery gave rise to issues between the sections of the country, which became inflamed by events—such as the raid of John Brown—until certain states were wrought up to the point of seceding.

But now—born, not legitimately of the constitution, nor of consent between the states, (which could never have generated anything more cohesive than a rope of sand), but of inexorable laws of nature—there stood a giant in the path. Perhaps, indeed, it was of origin unsanctioned by legal form. But it was born of proximity and geographical dependency, and it was nourished by the prosperous tide of commerce already beginning to transform the entire world. It already felt itself the natural heir to the vast and rich territory within its grasp. There it stood in the way of peaceable secession—a young nation, which denied the right of secession and stigmatized it as rebellion.

In vain did President Davis plead his constitutional rights, in a message to his congress: 'We protest solemnly, in the face of mankind, that we desire peace at any sacrifice save that of honor. In independence, we seek no conquest, no aggrandizement, no concessions of any kind, from the states with which we have lately been confederated. All we ask is to be let alone; that those who never held power over us shall not now attempt our subjugation by arms.'

It needed now but a first blow to precipitate a war to the death. Concerning first blows, Richard Cobden once said: 'From the moment the first shot is fired, or the first blow is struck, in a dispute, then farewell to all reason and argument: you might as well attempt to reason with mad dogs as with men when they have begun to spill each other's blood in mortal combat.'

The first blow came speedily, but by deliberate intent

of neither party. In Charleston a *status quo* had been agreed upon by both sides, to permit negotiations. Major Robert Anderson seized Fort Sumter 1860, Dec. 25. He did so by night, without orders, and contrary to his instructions, abandoning Fort Moultrie and disabling its guns. President Buchanan was about to order him to return to Fort Moultrie; but before the order could be issued the act was approved so enthusiastically by northern politicians that he did not dare to reverse it. Holding Fort Sumter, he was then constrained to dispatch an armed force to provision and supply it. Thus the Civil war was begun, the Confederates not waiting for the arrival of the armed force but making their attack.

This breaking out of hostilities brought into the Confederacy the Border States, not so vitally interested in the subject of slavery, but with every tradition and instinct keenly alert to their legal rights under the original constitution.

This was the real issue of the war, and not slavery, as is often loosely asserted. It is attested not only by the titles 'Union' and 'Rebel,' universally applied to the two armies by the North, but by the passionate claim of the Confederates that their struggle was for that liberty of self-government so dear for ages to the Anglo-Saxon race. And at the Fort Monroe conference in February, 1865, between President Lincoln and Vice-President Stephens, the South's surrender of his claim to integrity of the Union was the one point upon which Lincoln insisted, and one which Stephens could not yield, although utter destruction awaited him scarcely 60 days off. It is further shown in the desperate character of the struggle upon both sides, involving with equal ardor, individuals and communities of most diverse degrees of interest in the question of slavery.

The combatants were very unequally matched, and as each side was in deadly earnest, the final outcome of the contest was inevitable from its beginning. On the Union side was a population of over 20,000,000, with an army, a navy, a treasury, a highly developed system of transportation by land and sea, as well as of manufactures, of commerce, and of credit. On the Confederate side was a much scattered population, almost entirely agricultural, of about 5,000,000 whites, comparatively destitute of all those elements of military strength. Even their agriculture was so little devoted to food products that actual starvation of men and horses in their armies finally hastened the inevitable end.

Besides the whites, there was a population of 3,000,000 slaves. It was believed by many at the North that if their freedom was proclaimed by President Lincoln, as a war measure, while their masters were absent in the field, they would rise in insurrection, or at least desert their labor in mass. The experiment, however, being tried, proved a failure. The slaves generally remained faithful everywhere, except in the sections overrun by the enemy.

During the four years of the war there were actually mustered into the Union army 2,898,304 men. The Confederate numbers cannot be accurately known, but the total white population between the ages of 18 and 45 was, by the census of 1860, 984,475. In 1864 the ages for military service were extended to include all between 17 and 50, an act which was described by Gen. Grant as 'robbing the cradle and the grave.' Nearly 2,000 battles and skirmishes were fought, and in them the number of killed and wounded on the Union side is officially given as 389,345. The numbers on the Confederate side are not accurately known, no complete records existing, but they are estimated at about 300,000.

Of lives lost in the war from battle, wounds, and disease the official records of the Union army report 316,516. The lives lost in the Confederate army could not have been less than 250,000.

The Confederates appreciated the odds against them, but with firm conviction of the righteousness of their cause, they trusted to be able by fortitude and endurance to wear out and discourage their adversaries. The fighting was often very desperate as shown by the causalties upon both sides, which frequently exceeded the casualties of the severest battles of Europe. Upon three occasions, some historians have imagined, the Confederates were within reach of very important results.

At Bull Run (q.v.), the first battle of the war, the Federals were more completely routed than ever again, and Washington might have been captured, it is supposed, had the victory been followed up. Gettysburg (q.v.) is considered by many to have been the crisis of the war, a desperate attack by the Confederates being repulsed. But there is strong evidence that the greatest period of discouragement on the Union side followed the battle of Cold Harbor (q.v.), 1864, June 3. It was, however, of brief duration and of no effect. Successes elsewhere soon followed, and made it apparent that the Confederate resources were approaching exhaustion.

There are notable parallels between the war for the Union and the recent war between Great Britain and the Boers, in the issues involved, and in the course of their events. Like the Confederates, the whole of the Boer population considered themselves fighting for personal liberty as against subjection to a foreign power. Like the Confederates, the Boers fought practically without pay; and although they were inferior in numbers, their important engagements were generally victories; or, if not victories, were drawn battles. And as the end came to the Confederates, so it came to the Boers only with their utter exhaustion—through their being worn out, rather than defeated in battle.

But a great contrast is to be found in the treatment of the two peoples after their defeat. That of the Boer was liberal and generous, fully in accord with the civilization of the day. To parallel the treatment of the South every

effort must have been made to put the political control of the country into the hands of the Kaffirs. Of course the efforts to give the negro political control over the Anglo-Saxon at the South were foredoomed to failure. They prolonged ill-feeling for 10 years; but subsequent events, notably the Spanish war, at last inaugurated a new era in which few traces of it yet linger. And it is due to history to record that it is unlikely that any such effort would ever have been made, but for the assassination of Lincoln. Although for this unspeakable crime and folly the South was in no way responsible, it brought upon her a whirlwind of resentment, and at the same time it removed a President who, there is evidence to show, had already risen to the height of his great opportunity as a statesman, and was now planning terms of liberality upon which to reconstruct the southern states.

Within the few days that intervened between the surrender at Appomattox and the assassination of Lincoln, one in his close confidence prophesied that his plans of reconstruction would 'win over the South's good will and affection, and astonish the world.' And in giving his plans effect, no one can doubt that he would have had the cordial as well as powerful aid of Gen. Grant, who had already set the example of magnanimity, and won the gratitude of Lee's army by the generosity of his terms of surrender.

History records no crime greater than that of the assassin, who cheated the civilization and humanity of the world of the great example which Lincoln would have set to all nations, and who sowed bitterness and ill-will between the sections, bringing poverty and distress to the South, to the North the mortifying failure of its political experiment, and to the negro only an injury. But in connection with the negro question, as it confronts us to-day, it may be remarked that the problem of the races can be safely committed to time and to the racial instincts implanted by the Creator.

The constitution which was adopted by the six states in Montgomery, February, 1861, and in turn accepted by the others, was modeled closely after that of the United States. It forbade the slave-trade, or the importation of slaves from any foreign country other than the slave-holding states and territories of the United States. It forbade 'bounties' or 'trusts,' and provided a 'tariff for revenue.' It allowed the President to veto any part of a bill and approve the remainder, giving his reasons for such action; and fixed his term of office at six years, and made him ineligible for a second term.

The internal history of the Confederate States during the Civil war furnished a most instructive lesson as to the weakness of the bond by which they had associated themselves. Already, before the close of the war, it had proved itself but little better than the federation of the colonies for the Revolutionary war. The last message of President Davis to the Confederate congress, and the answering

THE CONFEDERATE CABINET.

report upon the message by a committee of the senate, contained much crimination and recrimination, and revealed an utter loss of confidence between the executive and the legislative branches, fatally paralyzing all action, and impossible to be healed. In a letter to the secretary of war, 1865, March 5, Judge John A. Campbell, assistant secretary, wrote: 'The political condition is not more favorable. Georgia is in a state that may properly be called insurrectionary against the Confederate authorities. Her public men of greatest influence have cast reproach upon the laws of the Confederacy and the Confederate authorities, and have made the execution of the laws nearly impossible.' In several of the other states there were also very serious issues between state and Confederate authorities.

In view of these facts, and of the history of all confederations of many small countries, it may now be clearly seen that the prize for which the South contended so strenuously would have proven but a calamity had she won it. There would have been in the country a condition of unstable equilibrium, with many centres of disturbance, which would surely have involved further division and probably further wars. To-day her people are citizens of a nation second to none in military renown or commercial strength, or in its power and influence for peace and civilization among the peoples of the earth. Were the right peaceably to secede, for which the South cheerfully endured all the bitterness of war, now tendered her as a free gift, every state would unanimously reject it as a curse.

Fewer generations of modern times have confronted sterner problems than did the men of the South in 1861. In the natural world, whenever the climate has changed, the fauna and flora have had to change to conform to new conditions. This is the law of evolution, the one great truth of which mankind may feel assured. It is not 'Eternal Justice' which will prevail. It is 'Conformation to Environment.' And the natural resistance to change by all interests in possession, makes evolution mean war to the death of the least fit, and the survival of the fittest.

Had the South been quick to apprehend these truths, then being first published to the world by Darwin, she might have accepted compensation for her property in slaves, and surrendered her constitutional right to secede. Had she done so, over 500,000 lives, and $10,000,000,000 of property, would have been saved.

But the Anglo-Saxon is not a ready barterer of what he deems his 'rights.' Nor would any nation thus founded upon 'consent' have commanded confidence, or ever inspired the national pride and loyalty which form the greatest treasures of a people. The conflict, with all its death and destruction, its sorrows, and its sufferings, was but the necessary baptism of this nation, legitimating its disputed birth by a verdict in the great high court of war, rendered in accordance with the laws of evolution, beyond which there is no appeal.

But while the generation which so lavishly poured forth blood and treasure may rightfully cherish to the last an ardent affection for its 'Lost Cause,' with its leaders and its heroes; not only its own children, but all succeeding generations, will enjoy great and enduring benefits and blessings, the very fruit of the desperation of its struggle, and of the utterness of its defeat.

And in its influence upon national character, and upon the standing of this nation among other nations, it is no small matter to have made the record for valor and devotion to principle which the South has set; or to have produced such leaders and types as Lee and Jackson and their colleagues.

Briefly it may be said that the rise and fall of the Confederate States of America constitute the most important feature of modern history, marking the sudden birth of a great nation. Such a nation could never have been founded in peaceful debate. The world may eventually reach a stage of development where such an event may be possible, but it had not done so in 1860. Previous to that date there was no assurance of stability to the nation. Since 1865 no convulsion could shake it. Succeeding years only demonstrate to the inhabitants of every section the increasing advantages of living in an undivided and an indivisible country. See CIVIL WAR.

Bibliography.—Davis, *The Rise and Fall of the Confederate Government;* Pollard, *The Lost Cause;* Greeley, *The American Conflict;* Stephens, *Constitutional View of the War Between the States;* Schwab, *The Confederate States of America;* the Count of Paris, *History of the Civil War in America;* Callahan, *Diplomatic History of the Southern Confederacy;* the *Memoirs* of Grant, Sherman, and Sheridan; and *Lives* of Lincoln.

CONFEDERATE VETERANS' ASSOCIATION: an association organized in New Orleans 1899, June 10. Its constitution says that it 'will endeavor to unite in a general federation all associations of Confederate veterans, soldiers, and sailors now in existence or hereafter to be formed; to gather authentic data for an impartial history of the war between the States; to protect the widows and orphans; to care for the disabled; and extend a helping hand to the needy.

CONFEDERATION: association by league or treaty entered into by states for mutual protection or commercial and political advantage. Prior to 1788, when the constitution was adopted, the United States were such a confederation: for its good results, and for its defects which led to a re-organization under the present constitution, see CONFEDERATION OF THE THIRTEEN AMERICAN COLONIES. For the confederation of the states of Germany, see CONFEDERATION OF THE RHINE: also GERMANY (for the 'Germanic Confederation'). See also FEDERAL GOVERNMENT.

CONFEDERATION OF THE RHINE: league of cer-

tain German princes, seceding from the German empire and allying themselves with France, 1806, July 12. During the war of 1805, so disastrous for Austria, several German princes, too weak to remain neutral, were forced to ally themselves with France. The first to do so were the electors of Bavaria and Würtemberg, who, in recompense of their services, were elevated to the dignity of kings by the peace of Presburg, 1805, Dec. 26. Some months after (1806, May 28), the arch-chancellor of the empire announced at the diet that he had chosen as his coadjutor and successor Cardinal Fesch, the uncle of Napoleon, an act entirely contrary to the constitution of the Germanic empire. Finally, at Paris, 1806, July 12, 16 German princes formally signed an act of confederation, dissolving their connection with the Germanic empire, and allying themselves with France. These 16 princes were—the kings of Bavaria and Würtemberg, the arch-chancellor, the Elector of Baden, the new Duke of Cleves and Berg (Joachim Murat), the Landgraf of Hesse-Darmstadt, the Princes of Nassau-Usingen, Nassau-Weilburg, Hohenzollern-Hechingen, Hohenzollern-Sigmaringen, Salm-Salm, Salm-Kyrburg, the Duke of Arenberg, the Princes of Isenburg-Birstein and Lichtenstein, and the Count of Leyen. These individuals justified (or were forced to justify) their conduct by enumerating the vices of the constitution of the Germanic empire, and invited the remaining princes of Germany to imitate their example. At the same time, Bacher, the French ambassador, declared that his master, the emperor Napoleon, no longer recognized the Germanic empire; while the territories and titles of the confederate princes (who were now under the protectorate of Napoleon) underwent considerable changes. In addition to these changes, a number of other princes and nobles of the empire were made dependent (see MEDIATIZATION) on the confederation. During the years 1806–08, several other petty German sovereigns, alarmed at the triumphs of Napoleon, hastened to enroll themselves members of this unpatriotic league; and at the close of 1808, it embraced a territory of 122,236 sq. m., contained a pop. of 14,608,877, and kept up an army of 119,180 men. The utter ruin which overtook the French army in the Russian campaign acted like a solvent on the confederation, and the year 1813 saw it vanish like mist in the sudden outburst of German patriotism, when a whole people leaped up as one man, and delivered themselves from a cruel and insulting bondage.

CONFEDERATION OF THE THIRTEEN AMERICAN COLONIES: preliminary compact of the states under Articles of Confederation. The first constitution of the United States was the document known as 'The Articles of Confederation,' drafted by the continental congress 1777, Nov. 15, adopted 1778, July 9, and ratified by the several states as a league of perpetual friendship for the common defense, the security of their liberties, and their mutual and general welfare. The last state to ratify was

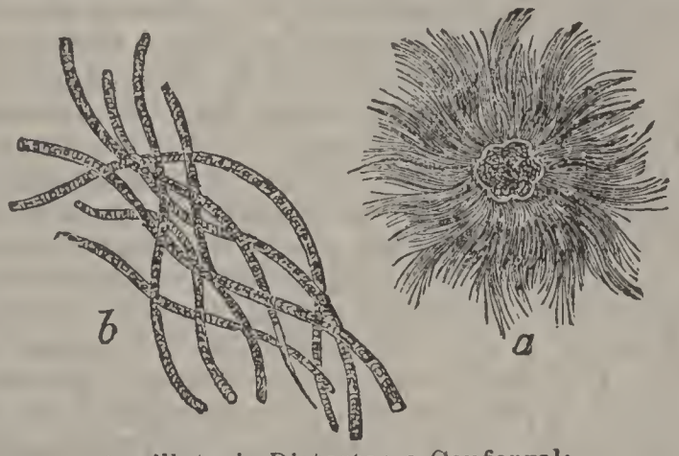
Maryland, 1781, Nov. 1. The ratification was founded on the assent of the state legislatures and not on that of the people of the states, directly or through special conventions. The confederacy was to be styled 'The United States of America,' and each state was to retain its sovereignty, freedom, and independence, and every power and right not expressly delegated to congress. The articles were 13 in number, and many objections were raised against them by the states, prior to ratification. After the conclusion of peace with Great Britain, it was found that the system of government adopted during the war was ill-adapted to the conditions of peace, the chief defect of the confederation lying in its weakness. The U. S. Congress was composed of delegates appointed in such manner as the state legislatures directed, not less than two nor more than seven from each state, the delegates being paid by the states and subject to recall at any time during their terms, which were for one year only. Each state had one vote. The confederation had little more than advisory powers, as the operations of the government depended upon the good will of the thirteen distinct and independent sovereignities. To remedy these serious defects congress authorized a convention to revise the articles of confederation. This assembled in Philadelphia, 1787, May 14, elected Gen. Washington president, and at once determined to draft a totally new constitution rather than to revise the Articles of Confederation, as they had been instructed to do. The sessions were held in secret. On Sept. 17 the draft of the new constitution was completed and immediately transmitted to congress for submission to the people of the states for ratification; was ratified by 11 states before the close of 1788; and, a majority having accepted it, congress designated the first Wednesday in 1789, Jan., for choosing electors of president; the first Wednesday in Feb., for the electors to meet in their respective states to vote for president and vice-president; and Mar. 4 as the time, and New York as the place, to begin proceedings under the new constitution.

CONFER, v. *kŏn-fėr'* [F. *conférer*, to confer—from L. *conferrĕ*, to bring or carry together—from *con*, *ferrĕ*, to carry, to bring: It. *conferire—lit.*, to bring or carry together as for comparison]: to give or bestow; to consult together; to converse; in *OE.*, to bring to or contribute. CONFER'RING, imp. CONFERRED, pp. *kŏn'fėrd.* CONFERENCE, n. *kŏn'fėr-ĕns* [F. *conférence*]: the act of conversing on any important subject and comparing opinions; a discussion between two or more for mutual instruction, as committees or delegates. CONFER'RER, n. one who. CONFERMENT, n. *kŏn-fėr'mĕnt*, the act of conferring, granting, or bestowing, as the conferment of degrees at universities.—SYN. of 'confer': to give; grant; bestow; counsel; advise; discourse; converse; contribute; consult;—of 'conference': conversation; colloquy; dialogue; discourse; consultation; interview.

CONFERVA, n. *kŏn-fėr'vă*, CONFER'VÆ, n. plu. *-vē* [L. *conferva*, a medicinal water-plant—from *confervērĕ*, to grow

together]: in *bot.*, fresh water plants, consisting of slender-jointed green filaments; green-colored algæ. CON'FERVA'CEOUS, a. *-vā'shŭs*, pertaining to the confervæ. CONFER'VOID, a. *-voyd* [Gr. *eidos*, resemblance]: in *bot.*, formed of a single row of cells; having articulations like the confervæ. CONFER'VITES, n. plu. *-vīts*, in *geol.*, fossil plants, apparently allied to the aquatic confervæ.

CONFER'VA· genus of plants of the nat. ord. *Algæ*, sub-order *Confervaceæ* (or order *Confervaceæ*). The plants of this genus consist of simple or branching jointed filaments, filled with green—seldom purple or red—matter, and are found in abundance in water—some of them in fresh, and some in salt water—and on moist earth. *C. rivularis*, a species common in brooks, is sometimes 2–4 yards in length, and was formerly used as an application to wounds



Oscillatoria Distorta; a Conferval:
a, natural size; *b*, magnified.

and slight burns. This and other species are sometimes called *Crow Silk*, and are used in some places for stuffing mattresses. *C. rupestris* often covers whole rocks on the sea-coast. *C. crispa* sometimes forms a close entangled layer on inundated land, and has received the name of *Water Flannel*. *C. ægagropila*, sometimes called *Moor Ball*, is found in lakes and ponds, where it floats about freely in the water, its filaments forming an entangled ball, capable of being employed as a pen-wiper.—The name C. is not always strictly limited to the genus, but is extended to many of its near allies. Among the *Confervaceæ*—or Confervals—however, are included many plants, as the different kinds of Laver, which have a flat, and not a thread-like frond Many also consist of cells immersed in a slimy matter. The *Confervaceæ* grow by the division, and sometimes by the branching of cells; reproduction takes place by *spores*, formed in the interior of the cells, and which at last are discharged through the walls of the mother-cell. The very interesting phenomenon of the conjugation (q.v.) of cells has been observed in them. The spores assume the character of zoospores (q.v.), exhibiting movements which resemble those of animals, before leaving the mother-cell, and retain this character for some time after escaping from it. *Confervaceæ* are found plentifully, even in mineral waters. Their great abundance often gives a color to the

whole water of tanks, marshes, etc. The Red Sea is said to derive its name from the color sometimes given to the surface of its waters, for distances as great as the eye can reach, by small *Confervaceæ*. The yeast-plant has been ranked among *Confervaceæ*, but is more generally regarded as one of the *Fungi*. Other vegetable organisms which appear in liquids of the most various kinds, and which have also been ranked among *Confervaceæ*, are more probably the *mycelium* of imperfectly developed *Fungi*. The plants noticed under ALGÆ as appearing in diseased conditions of animals, are regarded as *Confervaceæ*.—The Lavers are almost the only *Confervaceæ* ever used for human food.

CONFESS, v. *kŏn-fĕs'* [F. *confesser*—from L. *confessārī*, to confess: L. *confessus*, fully or entirely acknowledged—from *con*, *fatĕŏr*, I confess, I own: It. *confessare*, to confess]: to admit or own: to acknowledge, as a crime or fault: to disclose or avow; to admit or assent to as true; to hear the confession of another, as a Rom. Cath. priest does—also, to make the confession. CONFES'SING, imp. CONFESSED', pp. *-fĕst'*: ADJ. avowed; undenied; clear. CONFES'SION, n. *-fĕsh'ŭn* [F.—L.]: an open avowal; anything disclosed or acknowledged; profession; the acknowledgment of sins and faults to a priest or spiritual guide; the formulary containing the articles of faith. CONFES'SEDLY, ad. *-sĕd-lĭ*, avowedly; undeniably. CONFES'SANT, n. one who confesses to a priest. CONFES'SIONAL, n. *-fĕsh'ŭn-ăl*, the place where a priest sits to hear confessions. CONFES'SOR, n. [L. *confessor*: F. *confesseur*]: a priest who hears confessions; one who has borne persecution for his profession of Christianity—one who suffers death for his religion is a *martyr*. CONFES'SIONARY. a. *-ĕr-ĭ*, pertaining to confession to a priest. CONFESSION OF FAITH, in the *Scot. Chh.*, the formulated statement of the various doctrines held by that church, which all her clergymen, probationers, and elders must accept and subscribe as the profession of their faith: see CREEDS AND CONFESSIONS.—SYN. of 'confess': to acknowledge; own; avow; admit; grant; concede; assent; recognize; attest; exhibit; prove; disclose; reveal.

CONFESSION, in Law: the admission of guilt by an accused person. Confessions in course of judicial proceedings before a court are judicial confessions; made elsewhere, they are extra-judicial. In England, proof of C. is sufficient to warrant a jury in convicting without more evidence; in Scotland, some corroborating circumstance must be proved; and in the United States, the main body of the crime must be proved in order to conviction. A C. is admissible as evidence, but it must have been voluntary, made without any promise or threat to induce it. As to C. on trial, see PLEA OF GUILTY: as to C. before the examining magistrate, see DECLARATION.

CONFES'SION, in Roman Catholic Theology: declaration of sins to a priest in order to obtain absolution. The practice of C. is believed by Rom. Catholics to be of divine institution, founded on the power of binding and loosing from sin conferred on the apostles by Christ (Matt. xvi. 19·

xviii 18; John xv. 22, 23). The power of binding *or* loosing, being in the view of its advocates judicial and discretionary, presupposes a confession of sins in order to its being judicially exercised. Although some allusions to C. are found in the New Testament, Rom. Catholics do not allege any formal scriptural precept for it, but they contend that the above passages contain an implied precept, which they further support by testimonies of the Fathers. Though the apostle James recommends that Christians should confess their 'faults one to another,' yet formal and open C. appears to have been first required in cases where persons guilty of gross apostasy desired to be again received into the church. Motives of piety, and a wish to avoid the scandal of open C., led gradually to the institution of private C. in the hearing of a priest. In and after the 5th c., such C. was made an indispensable preparation for receiving the sacrament of the Lord's Supper. Open or public C., which was part of the discipline of public penance, ceased when that discipline went into disuse: see COMMINATION. Private C. has been retained, and though its defenders hold it to have been at all times in use, a general law was enacted by the fourth Council of the Lateran (can. xxi., *Omnis utriusque sexus*), requiring that every Christian who has attained the years of discretion should confess to a priest approved for the purpose, at least once in the year; and they insist that this law was by no means the origin of the precept of C., but merely defined the time of its fulfilment. C. is one of the three 'acts of the penitent'—contrition, confession, and satisfaction—which the Council of Trent declares to be parts of the sacrament of penance. The sinner is required to confess each and every mortal sin, in thought, word, and deed, which, after diligent examination of his conscience, has occurred to his memory. He is exhorted, but not required, also to confess venial sins (q.v.), especially if they be habitual. C., in order to be fruitful, must be accompanied by contrition and a purpose of amendment. It commonly embraces the sins committed since the last C.; but may include a longer period, and even the entire life. In the latter case, the C., is called general. It is called 'auricular,' as being made to the private 'ear' of the priest; and is ordinarily spoken, but in cases of necessity may be made in writing, by signs, or even by an intrepreter. Priests cannot validly receive confessions in any place without the 'approbation' of the bishop of the place, which may be given either absolutely or with restrictions. C. is prescribed in the ritual of the Greek, the Russo-Greek, the Coptic, the Syrian, and the other oriental churches. In most of these churches the practice is obligatory, but in some it has gone into disuse. The Lutheran Church professes (according to the 11th art. of the *Augsburg Confession*) 'that private confession must be retained in the church; but that full and particular statement of *all* sins is not necessary, because, according to Psalm xix. 12, it is impossible.' In the Apology of the Augsburg Confession, it is said to be 'impious' to abolish the practice of private C. to the priest; but in practice, the

Lutheran Church has widely departed from these rules. The Reformed Church (in Germany) has always been more inclined to general C.; and the United Church also substitutes for private C. certain devotional exercises previous to communion. The Church of England and the Prot. Episc. Church in America employs a general form of C. and absolution in its morning and evening services, but retains private C. in the rubric for visitation of the sick. Presb., Congl., Bapt., Meth., and other denominations of churches do not recognize it at all as a church ordinance, but only as a private duty and privilege upon occasion. The *Sigillum Confessionis* ('seal of confession'), both in the Rom. Cath. and in the German Prot. Church, means the obligation of a confessor or priest not to divulge the secrets of the confessional. This custom of secrecy is traceable in the 4th and 5th c., but was made binding by Innocent III. in the 12th, and its violation by a priest makes him subject to the severest penalties that can be inflicted by the church: see CONFIDENTIALITY.

CONFESSION, JUDGMENT BY, in Law: judgment against a defendant, on his confessing both the facts and law alleged by the plaintiff. An agreement to confess judgment is a common mode of securing money, but is subject to strict technical regulations.

CONFES'SIONAL: seat or recess in which the priest sits to hear confession in a Rom. Cath. church. It is probable that the confessionals in English churches, previous to the Reformation, like those still in Rom. Cath. use, were slight wooden erections; because they have so entirely disappeared that their form is a matter of dispute among ecclesiologists. Confessionals seem to have been not always used, as in an old painting on the walls of St. Mary's Chapel, Winchester, a woman is represented kneeling to a priest, who is seated in his stall. The confessional commonly has a door in front for the priest to enter by, and an opening on one or both sides, like a small window, with a grating of wire or zinc, for the penitents to speak through.

CONFESSION AND AVOIDANCE, in Pleading at Common Law: admission of the allegation of the opposite party, but with the addition of some circumstance which deprives it of legal effect, as, for instance, the admitting that an assault was committed, as alleged, but with the assertion that it was committed in self-defense: see PLEADING.

CONFIDE, v. *kŏn-fīd'* [mid. L. and It. *confidārĕ*—from L. *confidĕrĕ*, to trust confidently—from *con, fidĕrĕ*, to trust: F. *confier*]: to trust in firmly; to rely on; to believe in; to commit to the charge of; to deliver into the possession of another for safe keeping. CONFI'DING, imp.: ADJ. trusting; disposed to put confidence in. CONFI'DED, pp. CONFIDENCE, n. *kon'fi-dĕns*, firm trust in another; hope combined with faith; that in which trust is placed; reliance; security; boldness; courage. CON'FIDENT, a. *-dĕnt* [F. *confident*—from L. *confiden'tem*, trusting confidently]: having full belief;

trusting; relying on one's own ability; positive; bold to excess: N. one intrusted with secrets or important matters, as a servant or friend. CON'FIDANT', n. masc. CON'FIDANTE', n. fem. *-dănt'* [F.]: a bosom-friend, chiefly in love affairs and the lighter matters of life. CON'FIDENTLY, ad. *-dĕnt-lĭ*, with firm trust; undoubtingly. CON'FIDEN'TIAL, a. *-dĕn'-shăl*, spoken or written in confidence; trusty; faithful. CON'FIDEN'TIALLY, ad. *-lĭ*. CONFI'DER, n. *-dĕr*, one who. CONFI'DINGLY, ad. *-lĭ*. PRIVATE AND CONFIDENTIAL, words upon a written or printed communication intimating the desire of the sender that the receiver should not divulge its contents.—SYN. of 'confide': to commit; intrust; consign; —of 'confidence': hope; expectation; trust; assurance.

CONFIDENTIALITY, in Law: character attributed to such communications as the law holds privileged to remain undisclosed. The common instance of C. is in the case of those communications between a client and his legal adviser, which neither of them can be called on to produce in a suit, and upon which no action of damages can be founded. The privilege extends to letters written by the lawyer to his client, relating to a suit which is either pending or contemplated; but to what extent it covers other business communications, is a question on which there are conflicting authorities. In England, the rule has received a liberal interpretation (Dickson on *Evidence*, p. 930). The same privilege is extended to the communications of several parties, or of their counsel and agents engaged on the same side of a cause, and made with a view to their joint prosecution or defense. Where a party placed in such circumstances is examined as a witness, he will be entitled to decline answering questions as to such communings, and even bound to do so, unless the privilege is waived by the other party interested (Dickson, p. 924). The principle on which this privilege rests, as stated by Stephen (*Com.* iii. 466), is that these communications are made 'on such lawful occasions as tend to rebut the *primâ facie* inference of malice, which otherwise arises from a statement derogatory to private character.' It is on the same principle that a master is protected who, when called upon for the character of a servant, charges him with a theft. In such cases, in order to support an action, there must be proof of malice beyond the uttering of the words. With a view to preserving the freedom of domestic intercourse, and from a belief that the testimony of near relatives in favor of each other was worthless, and that the only effect of examining them against each other was to tempt them to commit perjury, it was formerly the habit to reject them as witnesses. The practice in England, for a long time, however, has been to admit, and even to exact their evidence, making allowance, in appreciating its value, for the circumstances in which they are placed; and the only exceptions to the now almost universal admissibility of witnesses, are, that neither the parties themselves, nor their husbands or wives, shall be competent or compellable to give evidence in criminal proceedings in which they are accused, nor to answer questions in a civil

suit tending to criminate themselves or each other, or to reveal matters which they have communicated to each other during marriage. The C. of such communications remains though the marriage has been dissolved by death or divorce (Dickson, p. 924).

From very early times, so early, it is said, as the 4th and 5th c., the 'Seal of Confession' in the church (*sigillum confessionis*) was held to be inviolable, and no priest could be called upon, under any circumstances, to reveal facts which had been confided to him under its sanction. To this the case of treason was an exception, in England, even in Rom Cath. times (Best's *Law of Evidence*, p. 737). In Rom. Cath. countries, the privileges of the confessional remain unaltered; and several of the Prot. churches of Germany having sanctioned the practice of confession, the privilege of secrecy has been extended to it, as a necessary consequence, by the civil power. In those states, however, in addition to imposing far lighter penalties upon clergymen who break the seal, the duty of doing so is enforced in all cases in which the confession has reference to a future crime. In England, no special privilege whatever is extended to the Rom. Cath. confessional; and the question as to how far a confession made to a clergyman for the purpose of obtaining spiritual comfort and consolation is protected, was long considered doubtful. The rule has, however, been settled for same time that no clergymen of any religious persuasion are entitled to the same privilege as legal advisers; though it has often been advocated as advisable to extend the rule to clergymen, including Rom Cath. priests. By a statute of the state of New York, ministers of the Gospel and priests of every denomination, are forbidden to disclose confessions made to them in their professional character; and a similar statute exists in Missouri. It has been decided in England, that communications to a medical man, even in the strictest professional confidence, are not protected from disclosure (Best, 734); but a contrary rule has been adopted in several of the states of America (1 Greenl., § 248, note).

CON'FIDENT PERSON: see INSOLVENCY.

CONFIGURE, v. *kŏn-fĭg'ūr* [F. *configurer*, to give form to—from L. *configurārĕ*, to form in accordance with—from L. *con*, *figūrā*, a form or shape: It. *configurare*]: to dispose or form in a certain figure or shape. CONFIG'URING, imp. CONFIG'URED, pp. *-ūrd*. CONFIG'URA'TION, n. *-ū rā'shŭn* [F.—L.]: external form; shape or outline of a body; aspects or arrangement.

CONFINE, v. *kŏn-fīn'* [F. *confiner*, to restrain within a place, to touch the borders of—from It. *confinare*—from L. *confīnis*, bordering on—from L. *con*, *fīnis*, a boundary or limit: F. *confins*, confines, borders]: to restrain within limits; to imprison; to shut up; to be much at home or in retirement; to tie or make fast; to bind. CONFI'NING, imp. CONFINED, pp. *kŏn-fīnd'*. CONFI'NER, n. one who. CONFI'NABLE, a. *-nā-bl*, that may be limited. CONFINE, s. *kŏn'fīn*, bordering on; adjacent. CON FINES, n. plu. joint

limits; adjacent parts; boundaries. CONFINE'MENT, **n.** restraint within limits; imprisonment; seclusion; voluntary restraint in any way; restraint by illness, applied to a woman in childbirth.—SYN. of 'confine, n.': border; boundary; bound; frontier; precinct; limit; purlieu;—of 'co ıfine, v.': to circumscribe: inclose; limit; bound; restrict; include; environ; surround; restrain; encircle; encompass;—of 'confinement': restraint; imprisonment; captivity; incarceration; bondage; slavery; immuring; servitude; seclusion.

CONFIRM, v. *kŏn-fėrm'* [F. *confirmer*, to confirm—from L. *confirmārĕ*, to establish—from *con*, *firmārĕ*, to strengthen; *firmus*, firm: It. *confirmare*]: to add strength to; to fix or settle; to assure or ratify; to admit to full Christian privileges by the laying on of hands. CONFIRM'ING, imp. CONFIRM'INGLY, ad. *-lĭ*, in a manner to strengthen or make firm. CONFIRMED', pp. *-fėrmed':* ADJ. settled; fixed. CONFIRM'ATORY, a. *-ă-tėr-ĭ*, serving to confirm; affording additional proof. CONFIRM'ER, n. one who or that which confirms. CONFIRM'ABLE, a. *-ă-bl*, that may be established or made more firm. CONFIRMATION, n. *kŏn'fėr-mā'shŭn* [F.—L.]: the act of fixing, settling, or making more certain that which confirms; evidence; proof; convincing testimony; admission to full Christian communion by laying on of the hands of the bishop. CONFIRM'ATIVE, a. *-ă-tĭv*, having the power of confirming. CONFIRM'ATIVELY, ad. *-lĭ*. CON'FIRMA'TOR, n. *-mā'tėr*, he that affirms or attests. —SYN. of 'confirm': to corroborate; strengthen; establish; fix; settle; verify; assure.

CONFIRMATION, in Church Usage: rite of admission to full Christian communion by laying on of the hands of the bishop. In the anc. church, the rite so named was administered immediately after baptism if the bishop happened to be present at the solemnity, which is still the custom in the Greek and African churches. In the Roman Catholic Church, for the last 300 or 400 years, the bishops have interposed a delay of seven years after infant baptism; in the Lutheran Church the rite is usually delayed 13 to 16 years; and in the English Church, 14 to 18 years. There is, however, in the latter church no limit to the period. Confirmation may be administered at an earlier period, if a family is about to emigrate; and persons are confirmed at the age of 60 or 70, if they choose. The ceremony consists in the imposition of hands by the bishop, accompanied by an invocation of the Holy Spirit as the comforter and strengthener. But both in the Lutheran and English churches the ceremony is made the occasion of requiring from those who have been baptized in infancy, a renewal in their own persons of the baptismal vow made for them by their godfathers and godmothers, who are thereby released from their responsibility. None can partake of the Lord's Supper, in these churches, unless they have been confirmed. In the Roman Catholic Church, confirmation is held to be one of the seven sacraments, and in its administration, unction and the sign of the cross

are used; and instead of the imposition of hands, the person confirmed receives a little blow on the cheek, to remind him that he must in future suffer affronts for the name of Christ. In the English Thirty-nine Articles, confirmation is declared not to be one of the sacraments, and the above ceremonies have been discontinued since the Reformation. —In non-prelatical churches, the term confirmation is sometimes applied to the candidate's own public act of confirming or adopting as his own the act and faith of others who have formerly caused him to be baptized.

CONFIRMATION, in English Law: grant by the party having right to land of the right that is in him to the party having possession. Confirmation, in Scots law, is the form in which a title to administer is conferred on the executor of a person deceased.

CONFISCATE, v. *kŏn'fĭs-kāt* or *kŏn-fĭs'kāt* [L. *confiscātus*, confiscated—from *confiscārĕ*, to transfer to the state treasury—from *con*, *fiscus*, a basket, a money-bag: It. *confiscare*]: to forfeit to the public treasury, as the goods or estate of a rebel or traitor. CON'FISCATING, imp. CON'FISCATED, pp. CON'FISCA'TOR, n. *-tėr*, one who. CONFIS'CABLE, a. *-kă-bl*, that may be confiscated. CON'FISCA'TION, n. *-kā'shŭn* [F.—L.]: the act of forfeiting or adjudging lands or goods to the public treasury: see ESCHEAT. CONFIS'CATORY, a. *-fĭs'kā-tėr-ĭ*, having the character of confiscation; consigning to forfeiture.

CONFISCA'TION, the act of condemning as forfeited and adjudging to the public treasury, the goods of a criminal in part punishment of a crime. The subject of confiscating the property of those in rebellion was warmly discussed both in and out of the United States Congress, at the beginning of the Civil War. A bill 'to confiscate property used for insurrectionary purposes,' etc., approved 1861, Aug. 6, providing for the immediate confiscation of all property belonging to office-holders under the Confederate government, and confiscation, within 60 days after the President's Amnesty Proclamation, of all property belonging to disloyal citizens or privates in the Confederate army, was passed by the House 1862, July 11, and the Senate the next day; and after a slight modification suggested by the President in his veto of the same, on constitutional grounds, it was again passed by both Houses on the 16th, and approved, becoming a law the next day. On July 22 the President issued an order that property needed for the support of the armies of the United States should be seized, an account being kept of the same.

CONFIX, v. *kŏn-fĭks'* [L. *con*, and *fix*]: in *OE.*, to fix down; to fasten. CONFIX'ING, imp. CONFIXED, pp. *kŏn-fĭkst;* fixed down.

CONFLAGRATION, n. *kŏn'flă-grā'shŭn* [F. *conflagration*—from L. *conflagrātĭōnem*, a burning, a setting on fire —from *con*, *flagrārē*, to blaze; *flagrātus*, blazed, burned: It. *conflagrare*]: a great fire; a burning of any great mass,

as houses or a forest. CON'FLAGRA'TIVE, a. *-tĭv*, causing conflagration.—SYN. of 'conflagration': fire; flame; combustion; blaze; ignition.

CONFLICT, n. *kŏn'flĭkt* [L. *conflictus*, a striking of one thing against another—from *con, flictus*, a striking or dashing against: It. *conflitto:* F. *conflit*]: a dashing or striking together of two bodies; a contest; a battle; strife; contention; distress; agony: V. *kŏn-flĭkt'*, to strike or dash against; to strive or struggle together; to contend; to fight. CONFLIC'TING, imp.: ADJ. opposing; contradictory. CONFLIC'TED, pp. CONLFIC'TIVE, *-flĭk'tĭv*, tending to conflict. —SYN. of 'conflict, n.': contest; combat; struggle; collision; strife; contention; battle; fight; agony;—of 'conflict, v.': to struggle; contest; contend; fight; battle; resist; strive; combat.

CON'FLICT OF LAWS: branch of international jurisprudence. On the breaking up of the Roman empire into separate kingdoms, as many systems of jurisprudence, more or less dissimilar, arose, and were administered side by side. But owing to commercial intercourse and intermarriage, many persons held property in more countries than one; many possessed two nationalities by birth, and more than two—if nationality could be acquired by residence and interest in a foreign state. In such circumstances, it often became an object of utmost importance to individuals to ascertain, and of the greatest difficulty to lawyers to determine, whether the laws of one state or of another were to govern questions of sale, succession, status, and the like. As no state could vindicate its jurisdiction beyond its own boundaries, without being guilty of an act of aggression, it became indispensable that certain general rules should be fixed upon to prevent the danger of national hostilities on trifling occasions. The elaboration of these rules constituted a new branch of jurisprudence, to which the title of the Conflict of Laws has been given, but which would be more accurately described as the rules for the solution of that conflict. From the partially independent character which belongs to the different states which constitute the American Union, the labors of the continental jurists in international jurisprudence have been carefully adapted to the requirements of that country; consequently this department has there had greatest attention. By American writers, the term Conflict of Laws has usually been confined to that branch of the law of nations which treats of the rights and duties of private individuals, and it is therefore synonymous with what elsewhere is called private international law: see INTERNATIONAL LAW, PRIVATE: COMITY OF NATIONS. See Story's *Conflict of Laws*.

CONFLUENT, a. *kŏn'flû-ĕnt* [F. *confluent*—from L. *conflŭĕns* or *confluen'tem*, a flowing together—from *con, flŭĕns*, flowing: It. *confluente*]: flowing together; meeting; joining, as streams running into each other; running into each other and spreading, as small-pox; gradually uniting so as to form one body. CON'FLUENCE, n. *-ĕns*, the junc-

tion or meeting of two or more streams of water; the place where they meet; the running together or concourse of people in a place. CON'FLUX, n. *-flŭks* [L. *fluxus*, flowing, fluid]: a flowing together; a crowd; a multitude collected.

CONFORM, v. *kŏn-fawrm'* [F. *conforme*, conformable—from L. *conformārĕ*, to form, to shape—from *con*, *forma*, shape: It. *conformare—lit.*, to make of the same form or shape with another]: to comply with or yield to; to act according to; to comply with or obey; to make similar or like; to reduce to a like form or shape; to make agreeable to: ADJ. made to resemble; resembling; like; similar, as *conform* to pattern. CONFORM'ING, imp. CONFORMED', pp. *-fawrmd'*. CONFORM'ER, n. one who. CONFORM'ABLE, a. *-ă-bl*, having the same form or shape with another; like; resembling; corresponding; suitable; compliant; in *geol.*, applied to strata or groups of strata lying one above another in parallel order. CONFORM'ABLY, ad. *-blĭ*. CONFORM'ABILITY, n. *-bĭl'ĭ-tĭ*, capability of becoming conformable. CONFORMATION, n. *kŏn'fŏr-mā'shŭn* [F.—L.]: the act of conforming; the particular make or construction of a body. CONFORM'IST, n. one who conforms; a member of an established church, as distinguished from a dissenter or *nonconformist*. CONFORM'ITY, n. *-ĭ-tĭ* [F. *conformité*]: correspondence or agreement in form or manner; resemblance; compliance with established forms, etc.

CONFORMITY. When strata of sedimentary rocks succeed one another in unbroken order with parallel bedding planes, and have been affected similarly by earth movements, they are said to be conformable, and the structure is a conformity. A false conformity is when, on an eroded surface of horizontal strata, other strata have been laid down.

CONFOUND, v. *kŏn-fownd'* [F. *confondre*—from L. *confundĕrĕ*, to mingle, to blend—from *con*, *fundĕrĕ*, to pour out: It. *confondere*]: to mingle different things so that they cannot be distinguished; to mix or blend; to confuse or perplex; to astonish or stupefy; to cast down; to terrify; to destroy; to dismay. CONFOUND'ING, imp. CONFOUND'ED, pp.: ADJ. in *familiar slang*, very great; detestable; odious; CONFOUND'ER, n. one who. CONFOUND'EDLY, ad. *-lĭ*, in *familiar language*, hatefully; shamefully.—SYN. of 'confound': to abash; confuse; baffle; defeat; disconcert; frustrate; discompose; foil; mix; blend; mingle; dismay; astonish; terrify; intermingle.

CONFRÈRES, n. plu. *kŏng-frärz'* [F. *confrère*, a professional companion—from *frère*, a brother]: brothers of the same monastery; associates; colleagues.

CONFRONT, v. *kŏn-frŭnt'* [F. *confronter*—from L. *con*, *frontem*, the forehead, front: It. *confrontare*]: to stand face to face; to set face to face; to bring into the presence of; to oppose. CONFRONT'ING, imp. CONFRONT'ED, pp. CONFRONT'ER, n. one who. CONFRONTÉ, in *heraldry*, facing or fronting one another: combatant.

CONFUCIUS.

CONFUCIUS, n. *kŏn-fū'shĭŭs* or *kŭngfū'tzē:* celebrated Chinese philosopher, abt. B.C. 500, whose works constitute the sacred books of the Chinese. CONFU'CIAN, a. *-shĭ-ăn*, of or relating to Confucius. CONFU'CIAN, or CONFU'CIANIST, n. *-ăn-ĭst*, a follower of or believer in. CONFU'CIANISM, n. *-ăn-ĭzm*, the moral and political science taught by Confucius and his disciples. This Chinese sage (B.C. 551, June 19—479) was born at Shang-ping, near the town of Tséuse, in the petty kingdom of Lu. His own name was Kong, but his disciples called him Kong-fu-tse (i.e. 'Kong, the Master or Teacher'), which the Jesuit missionaries Latinized into Confucius. His mother used to call him Kiéu ('little hillock'), because he had an unusual elevation on the top of his forehead, with which he is often represented. Various prodigies are reported in legend as forerunners of his birth. An illustrious pedigree also has been invented for him by his fond disciples, who derive his origin from Hoang-ti, a mythological monarch of China more than 2,000 years B.C. His father, Shuh-leang ho, died when Confucius was only three years of age, but he was very carefully brought up by his mother, Yan-she, and from his earliest years showed extraordinary love of learning and veneration for the ancient laws of his country. The prudence, rectitude, and philosophic gravity of his conduct while a boy, also are highly extolled by Chinese writers. At the age of 17, he was made an inspector of the corn marts, and distinguished himself by his industry and energy in repressing fraud, and introducing order and integrity into the whole business. When only 19 years old, Confucius married, but divorced his wife four years after marriage, that he might have more time for study and the performance of his public duties. Confucius was next appointed inspector gen. of pastures and flocks, and the result of his judicious measures, we are told, was a general improvement in the cultivation of the country and the condition of the people. The death of his mother in his 23d year, interrupted for a time his administrative functions, and gave occasion to the first solemn and important act of Confucius as a moral reformer. According to the ancient, but then almost forgotten laws of China, children were obliged to resign all public employments on the death of either of their parents; and Confucius, desirous of renewing the observance in his native land of all the practices of venerable antiquity, did not fail to conform to this long neglected enactment. The solemnity and splendor of the burial ceremony with which he honored the remains of his mother (another old custom which had fallen into disuse), struck his fellow-citizens with astonishment, and they determined, for the future, to bury their dead with the ancient honors. Their example was followed by the neighboring states, and the whole nation, except the poorest class, has continued the practice to the present day. Confucius now came to be looked upon as an authority in regard to the past, and ventured to speak as such. He inculcated the necessity

of stated acts of homage and respect toward the dead, either at the grave, or in a part of the dwelling-house consecrated for the purpose. Hence, 'the hall of ancestors,' and anniversary feasts of the dead, which now distinguish China as a nation. Confucius did not end here. He shut himself up in his house to pass in solitude the three years of mourning for his mother, the whole of which time he dedicated to philosophical study. Henceforth his career is only an illustration of his ethical system. He commenced to instruct his countrymen in the precepts of morality, exhibiting in his own person all the virtues he inculcated on others. Gradually his disciples increased, as the practical character of his philosophy became more apparent. After his 'years of mourning' and meditation were over, Confucius travelled through various states, in some of which he was employed as a public reformer. On his return to Lu, his reputation was very great, not less than 500 mandarins being among his followers. In fact it is to be observed, that generally Confucius' disciples were not the young and enthusiastic, but men of middle age, sober, grave, respectable, and occupying important public situations. This fact throws light both on the character and design of his philosophy. It was *ethical*, not *religious*, and aimed exclusively at fitting men for conducting themselves honorably and prudently in this life. Confucius now divided his scholars into four classes: to the first he taught morals; to the second, rhetoric; to the third, politics; and to the fourth, the perfection of their style in written compositions. While residing at Lu, Confucius worked industriously in the revision and abridgment of those works which constituted the principal monuments of that ancient literature about which he was always speaking in the language of unbounded reverence.

An unworthy change of magistrates, however, in the kingdom of Lu induced Confucius to recommence his travels. He went first to Chen, where he was not much appreciated; afterward to Tze, where he became one of the king's ministers, but was dismissed after a short time through the intrigues of cunning courtiers. On his return to Lu, he was appointed 'governor of the people.' For a time his inflexible virtue awed them into morality, and the delighted monarch conferred the highest dignities on the philosopher; but the arrival of a bevy of beautiful sirens from a neighboring state, which hated the increasing purity of Lu, suddenly overturned the edifice of morality which Confucius was constructing; and in despair, he again went abroad in search of less vacillating disciples. His later wanderings were very unpropitious; state after state refused to be improved. He was in some instances persecuted; once he was imprisoned, and nearly starved; and finally, seeing no hope of securing the favorable attention of the mass of his countrymen while alive, he returned in extreme poverty to his native state and spent his last years in the composition of literary works by which posterity at least might be instructed. He died in

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the 70th year of his age. Immediately after his death, and notwithstanding the general demoralization of his contemporaries, Confucius began to be venerated, and succeeding ages adorned his name with golden epithets. His family, which has continued to the present day, through more than 70 generations, in the very place where their ancestor lived, is distinguished by various honors and privileges, being the only example of hereditary aristocracy in China, while in every city down to those of the third order there is a temple to his honor. The 18th day of the second moon is kept sacred by the Chinese as the anniversary of his death.

The system of Confucius is, rightly considered, the most faithful expression of the Chinese mind, though it is neither the oldest of the extant Chinese religions, nor that which can claim the greatest number of adherents. We have termed it a *religion*, but it ought rather to be regarded as a system of social and political life built upon a slight foundation of philosophy. It contains no trace of a personal God. There are, indeed, a number of allusions to a certain heavenly agency or power, *Shang-te*, whose outward emblem is *Tien*, or the visible firmament; but this Shang-te, in the opinion of the most enlightened Chinese scholars, is nothing more than a verbal personification of 'the ever present Law and Order and Intelligence, which seem to breathe amid the wonderful activities of physical creation, in the measured circuit of the seasons, in the alternation light and darkness, in the ebb and flow of tides, and in the harmonious and majestic revolutions of the heavenly bodies.' Sometimes, indeed, Confucius uses language that might seem to imply more than this. In one of the sacred books Shang-te is depicted as possessing a high measure of intelligence, and exercising some degree of moral government; he punishes the evil, rewards the good, and is honored with sacrifice. Immediately afterward, however, we are informed that his retinue consists of the six Tsong, the mountains, the rivers, and the spirits generally. Elsewhere, the people are enjoined 'to contribute with all their power to the worship of Shang-te, of celebrated mountains, of great rivers, and of the 'shin' (spirits) of the four quarters.' Hence we are forced to the conclusion, that Confucius no more believed Shang-te to be a personal being, than he believed the mountains to be such; and that in describing this Power as possessed of intelligence, and as exercising a moral government, he simply spoke in a pictoral and symbolic way of the laws that govern all things. Perhaps, too, a dim consciousness of a mysterious inexplicable *life* pervading the phenomena and operating through the laws of nature—a feeling probably absent from no human soul—influenced Confucius to use words indicating the Divine Being as personal which his understanding would not have interpreted in a literal manner. His highest conception of God, therefore, only reminds one of the *anima mundi* of the classical philosophy; and even this

conception is not always present. The idea of a creation out of nothing by an infinite and eternal Father for the revelation of himself in love, or even for the manifestation through material symbols of his wisdom, power and majesty, to those intelligences whom in his beneficent condescension he had created, is utterly unknown to Confucius. He looked on the universe rather as a stupendous, self-sustaining mechanism. He thought that all things existed from eternity, and were subject to a flux and reflux, in obedience to initial laws which some stern necessity had impressed upon them, how and why, we know not. Thus, chaining to the earth, as it were, those thoughts that wander through eternity;' crushing, in fact, every spiritual tendency of human nature, by repudiating all speculation, and wellnigh all philosophic investigation of every kind, Confucius strove to direct the attention of men to the duties of social and political life. 'I teach you nothing,' he says, 'but what you might learn yourselves—viz., the observance of the three fundamental laws of relation between sovereign and subject, father and child, husband and wife; and the five capital virtues—universal charity, impartial justice, conformity to ceremonies and established usages, rectitude of heart and mind, and pure sincerity.' This, in fact, contains the whole doctrine of Confucius; and it was unquestionably well suited to the prosaic, practical, and conservative mind of the Chinese. It was only by the strict and faithful performance of appointed duties, and by the cultivation of proper feelings and sentiments, that Confucius believed wisdom or knowledge could be obtained. He seems to have entertained no doubt that the great virtues of charity, justice, and sincerity might be developed without the help of any spiritual or religious faith, by a species of mechanical discipline. They were natural to the mind, he thought, just as their opposites were unnatural. Here, again, we find a striking example of that easily satisfied unphilosophic *materialism* which characterized Confucius, and has since leavened the Chinese nation so thoroughly. He virtually says: 'Just as I am forced to accept the phenomena of the universe as *facts*, though I can give no explanation of their origin, so am I forced to accept the phenomena of the human mind as *facts*, though I can give no explanation of *their* origin.' Con fucius finds evil and good, wisdom and folly, in the hearts of men. He cannot help making this distinction; some things are bad, others good; such is the oracular utterance of his conscience, which he terms 'the light of intelligence.' He does not, however, advance a step further, and make this moral conviction the basis of a religion. His 'good' has no connection with any God. It exists; we are forced to recognize it as such; that is all we can know. Cultivate it. Those great laws of nature about which we know nothing except that they are realities, are on its side. Do not foster what you know to be mean and unworthy, for 'he who offends against Heaven has no one

to whom he can pray.' 'Imperial Heaven will assist only virtue.' From this point of view, Confucius taught a simple and comprehensive rule of life, both private and public. First, let every man govern himself according to the sacred maxims; then his family according to the same; and finally, let him render to the emperor, who is the father of his people, such filial obedience as he demands of his own children, and worship him with the same veneration as he does his own ancestors; for thus will domestic peace, social order, and the safety of the commonwealth be preserved. To further this end (and in accordance with his belief that by instruction in the sacred precepts everything desirable could be accomplished) Confucius inculcated the necessity of universal education, and, in consequence, schools are diffused through the length and breadth of the empire, penetrating even to the remotest villages, where the maxims of the philosopher are taught.

Confucianism appeals to 'practical' men. It lauds the present world; rather doubts, than otherwise, the existence of a future one; and calls upon all to cultivate such virtues as are seemly in citizens—industry, modesty, sobriety, gravity, decorum, and thoughtfulness. It also counsels men to take part in whatever religious services have been established from of old. 'There may be some meaning in them, and they may affect your welfare in a way you do not know of. As for the genii and spirits, sacrifice to them: I have nothing to tell regarding them. whether they exist or not; but their worship is part of an august and awful ceremonial, which a wise man will not neglect or despise.' Confucianism, in consequence, almost immediately after the death of its author, became the religion of the state, to which it has proved an admirable ally; its theory of government being nothing less than a paternal despotism. The entire literary class in China, are also followers of Confucius, and, in fact, for many ages the literature of China has consisted exclusively of commentaries on the five canonical books which Confucius professed to merely abridge, and of four others, which were composed partly by himself and partly by his disciples and which, together with the former, constitute the nine Chinese classics.

The five canonical books are the *Yih-king*—originally a cosmological essay, now, strangely, regarded as a treatise on ethics; the *Shu-king*—a history of the deliberations between the emperors Yaou and Shun, and other personages, called by Confucius the *Ancient Kings*, and for whose maxims and actions he had the highest veneration; the *Shi-king*—a book of sacred songs, consisting of 311 poems, the best of which every well-educated Chinaman gets by heart; the *Le-king*—the Book of Rites, the foundation of Chinese manners, prescribing, as it does, the ceremonies to be observed in all the relationships of life, and the great cause of the unchangeableness and artificiality of Chinese habits; and the *Chuntsien*—a

history by Confucius of his own times, and those which immediately preceded him. The first of the 'Four Books' is the *Ta-hëo*, or 'Great Study,' a political work, in which every kind of government, from the domestic to the imperial, is shown to be essentially the same—viz., parental; the second is *Chung-yung*, or 'the Invariable in the Mean,' a book devoted to teaching men what is 'the due medium,' or the golden mean, to observe in their conduct; the third is the *Tun-yu*, or 'Philosophical Dialogues,' containing the recorded conversations of Confucius, and the best book for obtaining a correct knowledge of his character; and the fourth is the *Hi-tse*, written by Meng tse, or Mencius, who died B.C. 317, and who was by far the greatest of the early Confucians.

It is proper to observe, in conclusion, that in the course of centuries the defects of the system of Confucius made themselves felt even to the unspiritual Chinese mind; and the necessity of 'speaking out far more plainly, not on matters of finance, economy and etiquette, but on the nature of the world and its inhabitants, and the true relation of the seen and temporal to the absolute and the all-embracing, was recognized. The philosopher who guided this great movement to a prosperous close was Tehu-he (died A.D. 1200); termed by European scholars the Chinese Aristotle, and regarded by all the governing class in China as 'the prince of science.' His innumerable works are laboriously studied by the higher literary class, and are considered the standard of methaphysical or religious orthodoxy.

See CHINESE EMPIRE. See Legge's *Life and Teachings of Confucius* (1867), and *Religions of China* (1880); Douglas's *Confucianism and Taouism* (1880).

CONFUSE, v. *kŏn-fūz'* [F. *confus*, confused—from L. *confūsus*, disordered—from *con*, *fūsus*, poured out, diffused: It. *confuso*]: to mix or disorder things so that they cannot be distinguished; to render indistinct; to perplex; to throw into disorder; to agitate by surprise or shame. CONFU'SING, imp. CONFUSED, pp. *kŏn-fūzd.* CONFU'SEDLY, ad. *-fū'zĕd-lĭ.* CONFU'SEDNESS, n. *-zĕd-nĕs*, a state of confusion; want of distinctness. CONFU'SION, n. *-fū'zhŭn*, an irregular mixture or medley; disorder; indistinctness; astonishment; distraction of mind; agitation; in *OE.*, destruction; overthrow.—SYN. of 'confuse': to abash; disorder; confound; disconnect; distract; obscure; perplex;—of 'confusion': disorder; disturbance.

CONFUTE, v. *kŏn-fūt'* [F. *confuter*—from L. *confūtārĕ*, to cool down, to repress—from *con*, *fūtum*, a vessel to sprinkle water: It. *confutare—lit.*, to cool down by pouring cold water on]: to prove to be wrong or false; to convict of error by argument or proof. CONFU'TING, imp. CONFU'TED, pp. CONFU'TER, n. one who. CONFU'TABLE, a. *-tă-bl*, that may be confuted; capable of being shown false. CON'FUTA'TION, n. *-fū-tū'shŭn*, the act of disproving. CONFU'TANT, n. one who confutes or undertakes to confute.—SYN. of 'confute': to refute; oppugn; impugn; disprove; overthrow; overcome.

CONGAREE RIVER, *kŏng-ga-rē′:* in S. Car.; abt. 50 m. long between its formation near the middle of the state by the confluence of the Broad and Saluda rivers, and its confluence with the Wateree, after which the two take the name of Santee. It is navigable by steam-boats.

CONGÉ, n. *kōng′zhā* [F. *congé*, permission, leave of absence—from OF. *comjat*—from mid. L. *comĭātus*, permission, authorization: L. *commĕātus*, leave of absence—from *commĕō*, I come and go]: leave; farewell; parting ceremony; bow: V. to take leave by a bow or other mark of civility or respect. CON′GEED, pp. *-zhād.* CONGÉ D′ÉLIRE, *-dā-lēr′* [F. *congé*, leave; *élire*, to choose]: the sovereign's warrant or permission to a dean and chapter in the Church of England to proceed to the election of a bishop to a vacant see. Since the passing of the statute 25 Henry VIII. c. 20, the *congé d'élire* has always been accompanied by a letter-missive from the king, mentioning by name the person to be elected, so that in reality it is a nomination equivalent to an appointment by the crown. If the dean and chapter delay the election beyond 12 days, the nomination is effected by letters-patent from the crown; if they delay beyond 20 days, or elect another than the person named, they incur the penalties of a *præmunire*, *i.e.*, loss of civil rights, forfeiture of their goods, and imprisonment during the royal pleasure.—Stephen's *Commentaries*, vol. iii. p. 8. TO GIVE ONE HIS CONGÉ, to get rid of one by dismissal.

CONGEAL, v. *kŏn-jēl′* [F. *congeler*—from L. *congĕlārĕ*, to congeal—from *con*, *gelu*, frost: It. *congelare*]: to change from a fluid to a solid state, as by cold or loss of heat; to fix or stagnate; to produce a sensation of cold or shivering by some external cause. CONGEAL′ING, imp. CONGEALED′, pp. *-jēld′.* CONGEAL′ABLE, a. *-ă-bl*, that can be thickened or made solid. CON′GELA′TION, n. *-jĕ-lā′shŭn* [F.—L.]: the act of converting a fluid into a solid, as by cold. CONGEAL′MENT, n. *OE.*, a clot; a concretion.

CONGEE, n. *kŏn-jē′:* in *China*, rice-porridge, or thick rice-gruel; in *India*, a jail or lock-up.

CONGENER, n. *kŏn′je-nėr* [L. *congĕner*, of the same species or kind—from *con*, *genus*, a kind: It. *congenere:* F. *congénère*]: one of the same origin or kind. CON′GENER′IC, a. *-jĕ-nėr′ĭk*, of the same kind or nature.

CONGENIAL, a. *kŏn-jē′nĭ-ăl* [L. *con*, *gĕnĭālis*, jovial, genial; *gĕnĭŭs*, natural disposition, fondness for good living]: partaking of a similar or kindred nature; suitable; kindred; similar; belonging to the nature. CONGE′NIALLY, ad. *-lĭ.* CONGE′NIAL′ITY, n. *-ĭ-tĭ*, state of having a similar or kindred nature: state of being congenial

CONGENITAL, a. *kŏn-jĕn′ĭ-tăl* [L. *congĕnĭtus*, born together—from *con*, *genĭtus*, brought forth, produced: It. *congenito*]: of the same birth; born with another; existing from birth, as a disease or some deformity with which one is born.—Congenital diseases are acquired

during pregnancy, and are hereditary, or non-hereditary: among the hereditary from either parent are some chronic diseases of the skin, also syphilis. Small-pox may be communicated by the mother: among the non-hereditary is hydrocephalus.

CONGER, n. *kŏng′gėr*, or CONGER-EEL [L. *conger:* It. *congro:* F. *congre*]: genus of marine fishes of the eel family (*Murænidæ*), having the tail more elongated and pointed than the fresh-water eels, the dorsal fin commencing much nearer the head, and the teeth of the upper jaw, although slender, placed so close together as to form a cutting edge. The species are not numerous. One species (*conger vulgaris*), common on the British coasts, is found both among rocks and on banks. Its form much resembles that of a fresh-water eel; its color is brown above, passing into dull white beneath; the fins whitish, edged with black; and the lateral line almost white. It attains a large size, often five or six ft. long, sometimes ten ft., with eighteen inches circumference, weighing more than 100 pounds. It possesses great strength, and is a formidable antagonist when hauled into a boat by the fisherman's line, or found among the rocks, where it is sometimes left by the retiring tide.

CONGER, *kŏn′gėr*, EDWIN HURD, American diplomatist: b. Knox county, Illinois, 1843, March 7; d. Pasadena, Cal., 1907, May 18. He was graduated at Lombard University in 1862, served in the Union army 1862–5, studied law and was graduated at the Albany Law School in 1866. He began the practice of his profession in Galesburg, Ill., removing to Iowa in 1868. He was elected to Congress in 1884 and twice re-elected as a Republican. In 1890 he was appointed minister to Brazil, serving four years. In 1897 he was again appointed to that post and in the following year was transferred to China. He was at his post throughout the Chinese crisis of 1900, in Peking, being imprisoned with his family and the entire diplomatic corps in the British legation compound from June 20 to August 15. He narrowly escaped slaughter at the hands of the Boxers, false reports of a general massacre of the foreign ministers being repeatedly circulated; his rescue on August 20 was effected by the allied powers barely in time to save him and his colleagues from a general massacre. He was ambassador to Mexico in 1905.

CONGERIES, n. plu. *kŏn-jē′rĭ-ēz* [L. *congĕrĭēs*, a heap, a pile—from *con*, *gĕro*, I bear or bring]: a collection of small particles or bodies forming one mass; a confused heap.

CONGEST, v. *kŏn-jĕst′* [L. *congestus*, pressed together, heaped up—from *con*, *gestus*, carried: It. *congestione;* F. *congestion*, congestion]: to gather into a mass. CONGEST′-ING, imp. CONGEST′ED, pp.: ADJ. containing an unnatural accumulation of blood, or other fluid. Said also of a thickly populated district. CONGEST′ION, n. *-yŭn* [F.—L.]: an unnatural collection of blood, or other fluid,

in any part of an animal body. CONGES'TIVE, a. *-tiv*, tending or pertaining to congestion.

CONGES'TION OF BLOOD, called also Fulness of Blood, Vascular Turgescence, Hyperæmia [*hyper*, excess; *aima*, blood]: 'excess of blood in the vessels of a part with diminished motion of that blood.' Congestions are described as being either *active* or *passive*. But active congestions are always essentially parts of a further morbid process, such as inflammation (q.v.), tumor (q.v.), or softening of texture; while passive congestions are almost always determined by some mechanical cause of obstructed or retarded circulation. It results from this view of its pathology that congestion alone can hardly ever require treatment, or be anything else than one among other indications of disease.

The chief causes of congestion may be classed under two heads: (1) congestion from venous obstruction; (2) congestion from want of tone in the vessels.

1. *Congestion from venous obstruction* is easily illustrated by tying up the arm, as is done before opening a vein, when the veins are compressed more than the arteries. If the ligature is kept on for a sufficient time, the veins swell, the fingers become red, and then livid, and the whole limb is swollen. Cold applied to the surface of the body acts similarly on it, and contracts the veins more rapidly than the arteries, which lie deeper; and the purple color of the hands and face after exposure to cold shows the congested state of the capillaries. 'Congestions,' says Dr. C. J. B. Williams, 'are caused in external organs by an obstruction of the veins leading from them. Thus, congestion of the brain may be produced by a tight cravat or by a tumor pressing on the jugular veins. Efforts of straining, coughing, holding the breath, and asthmatic paroxysms which impede the flow of blood through the lungs, cause congestion in various parts. Tubercles in the lungs cause congestion of that organ. Obstruction to the transit of blood through the liver causes congestion in the abdomen, hemorrhoids, etc.'—*Principles of Medicine*, 2d ed p. 180.

2. *Congestion from want of tone in the vessels* includes a numerous class of cases. In atony of the vessels generally, as in extreme debility, certain fevers, etc., there is general congestion of the parenchymatous organs—the lungs, liver, etc.—and the blood gravitates to the lowest parts, giving rise to what is termed *hypostatic* congestion of the posterior parts of the lungs, the skin of the back, etc. In other cases, the weakness is local, as when the feet swell after long standing, in consequence of over-distension of the veins. Similarly, a continued stooping posture may occasion headache, giddiness, and the other symptoms of congestion of the brain. Congestive affections of this kind are often mistaken for inflammation, and instead of being treated by tonics, are treated by depletion, which, though affording temporary relief, increases the evil

Another cause of congestion is over-excitement of the

vessels, and this often occurs at an early stage of inflammation, or as a result of that process.

As to the symptoms and effects of congestion, they vary very much according to the organ affected.

General Remedies.—First in order are those remedies that remove the cause, as the loosening of a ligature, or the removal of a tumor compressing veins, elevation of the head in affected brain, and the recumbent position in congestion of the hemorrhoidal or uterine vessels. Pressure, by supporting the weak vessels, and friction, by increasing the onward movement of the blood in the veins, are often of great use. Astringents, such as solution of alum, sulphate of zinc, tannin, oak-bark, etc., may be applied with advantage locally to certain parts, as the eye, throat, rectum, etc.; and stimulants may be similarly used, as a capsicum gargle to a relaxed sore throat. Medicines of these classes may also be given internally. Thus, the principal action of bark, quinine, and arsenic in the cure of ague is supposed to lie in their reducing the great visceral congestion that is always present. A stimulant draught will often relieve a congestive headache, or the pulmonary congestion which follows a fit of asthma. Various remedies are supposed to have a special power of removing the congestion of certain organs; thus, mercurials are recommended for congestion of the liver; digitalis and cantharides for congestion of the kidneys; and squills, benzoin, and the balsams for bronchial congestion.—See the work of Dr. Williams, quoted above.

CONGIUS, n. *kŏn'jĭ-ŭs* [L.]: a liquid measure containing one gallon.

CONGLACIATE, v. *kŏn-glā'shĭ-āt* [L. *conglaciatus*, pp. *conglacio*, I freeze together—from *con*, *cum*, with, together, and *glacio*, I freeze; *glacies*, ice]: to turn to ice; to freeze; to congeal.

CONGLETON, *kŏng'gl-ton:* market-town in Cheshire, England; picturesquely situated in a deep valley, on the Dane, 33 m. e. of Chester. It is a mile long, with many houses built of wood and plaster, and has silk spinning and throwing, with manufactures of silk ribbons, etc. There are coal-mines near. Pop. (1891) 10,744.

CONGLOBATE, a. *kŏn'glō-bāt* [L. *conglobātus*, gathered into a ball—from *con*, *globus*, a ball: It. *conglobare*]: formed or gathered into a ball; in *anat.*, globular: V. to form into a ball or hard round substance. CON'GLOBA'TING, imp. CON'GLOBA'TED, pp. CON'GLOBA'TION, n. *-bā'shŭn* [F.—L.]: collection into a round mass.

CONGLOBE, v. *kŏn-glōb'* [L. *con*, *globus*, a round mass, a ball]: in *OE.*, to form into a globe; to gather into a round mass. CONGLO'BING, imp. CONGLOBED', pp. *-glōbd'*.

CONGLOMERATE, a. *kŏn-glŏm'ĕr-āt* [L. *conglŏmĕrātus*, rolled together—from *con*, *glomĕrārĕ*, to wind into a ball; *glomus*, a clew of thread, a ball: It. *conglomerare:* F. *conglomérer*]: gathered together, as a ball of thread; gathered or huddled together into a mass: N. a coarse rough rock com-

posed of rounded fragments of various kinds bound together by a cementing substance—when the pieces are sharp and angular, the rock is termed a *breccia;* also called pudding-stone: V. to collect into a round mass. CONGLOM'ERATING, imp. CONGLOM'ERATED, pp. CONGLOM'ERA'TION, n. *-ā'shŭn,* collection of various particles of bodies into a mass.

CONGLOMERATE, or PUD'DING-STONE, called also BRECCIA: rock consisting of round, water-worn pebbles, compacted together. These pebbles consist of portions of hard rock, frequently quartz. They can sometimes be traced to their parent rock. Their rubbing and polishing must have been a work of considerable time, but their deposition in the beds in which they occur has been performed speedily, the materials having been brought together by a strong current. They are united together by a silicious, calcareous, or ferruginous cement, sometimes so loosely, that they are easily separated by a slight blow from a hammer; at other times, the matrix is as hard as the pebbles which it contains, and clasps them so firmly, that the rock breaks, as if it were a homogeneous mass. The pebbles vary in size, occasionally being several ft. in diameter; but they are generally about the size of, or smaller than a walnut. Silica is the commonest cementing material, calcite and limonite coming next. The pebbles and boulders may be of any kind of rock, though quartz and quartzite are the most frequent, since the most resistant material in gravels. According to the character of the pebbles, different names are given, as quartz conglomerate, limestone conglomerate, etc. Conglomerates grade through pebbly sands and sandstones into true sands and sandstones. Under dynamic stress, in the folding of rock strata, the pebbles of a conglomerate may be much distorted, and by further metamorphism a conglomerate may pass into a gneiss. A conglomerate is a sedimentary rock. Conglomerates form along shores and the pebbly beaches now forming will, when consolidated, produce conglomerates. The presence of conglomerates within the strata of the earth's crust indicates an encroachment of the sea upon the land. Some notable conglomerates are the copper-bearing Calumet and Hecla conglomerate on the Keweenaw Peninsula, Michigan, of Algonkian Age; the great conglomerate at the base of the coal measures of Carboniferous Age, in Pennsylvania and adjacent states; the Roxbury conglomerate of uncertain age, near Boston, Mass.; and the famous 'blanket,' possibly of Permian Age, on which are located the great gold mines of the Transvaal. See BRECCIA: GNEISS: ROCK: SANDSTONE.

CONGLUTINATE, v. *kŏn-glō'tĭ-nāt* [L. *conglūtĭnātus,* united firmly together—from *con, glūten,* glue: It. *conglutinare:* F. *conglutiner*]: to glue together; to heal a wound by uniting the parts by a tenacious substance; to unite: ADJ. in *bot.,* soldered or glued together in heaps. CONGLU'TINATING, imp. CONGLU'TINATED, pp. CONGLU'TINA'-

TION, n. *-nā'shŭn* [F.—L.]. CONGLU'TINATIVE, a. *-nā-tĭv*, having the power of uniting by means of a gluey-substance. CONGLU'TINATOR, n. *-tėr*, that which.

CONGO, or CONGOU, n. *kŏng'gô* [Chinese *kung-foo-cha*, worked tea—from *kung-fu*, labor]: a fine variety of black tea from China.

CONGO, *kong'go:* in the widest sense, all the countries on the w. coast of Africa between the equator and lat. 18° s.; but more definitely, the name is given to the territory lying between the rivers Coanza and Congo, or Zaire. The great central African river, the Congo, which Stanley proposed to call the *Livingstone*, has of late drawn much of the interest formerly reserved for the Nile and its exploration. At its mouth on the Atlantic seaboard the Congo is an immense body of water, nearly 10 m. wide and 160 fathoms in depth. Its upper course remained unknown till Mr. Stanley identified the Congo with the Lualaba, and so connected it immediately with the great system of lakes, s. and w. of Lake Tanganyika, and less directly with Tanganyika (q. v.) itself. The former chain of lakes, examined by Livingstone in the hope that here he might finally fix the sources of the Nile, were long suspected to drain toward the Congo—a suspicion confirmed by Cameron. But Mr. Stanley and his followers, striking the Lualaba at Nyangwe, 1876, Nov., followed its course persistently in the face of enormous difficulties, fighting no less than 32 battles; till, 1877, Aug., he found it, after 'changing its name scores of times,' reached the Atlantic as Congo or Zaire. The Lualaba-Congo, interrupted to the n. of Nyangwe by cataracts and rapids, flows northward from the lake region to about 2° n. of the equator (where it is already 'a broad stream from 2 to 10 m. wide, studded with islands'); then its course changed to n.w., w., and finally to s.w. Between e. long. 26° and e. long. 16°, it has an uninterrupted course of 1,000 miles, with magnificent affluents, especially on the s. side. Thence, through the Crystal Mountains it descends by about 30 falls and rapids to the Yellala falls. From below here to the Atlantic, it is again a navigable stream. Much discussion has occurred as to the Congo source; some claim one of the e. tributaries of the Malagarazzi as the headwaters; most consider the Chambezi as such; following Wauters, we accept the Lubudi, rising near 11° 30′ s. 24° e. From source to mouth the Lubudi-Kamolondo-Lualaba-Congo has a length of 2,500 miles; by its network of tributaries it was said by Stanley to drain an area of 1,300,000 sq. m. Its most important affluents are the Lomami, Lulonga, Ruki, Irebu, and Kasai from the left, and the Aruwimi, Rubi (Itimbiri), Mongala, and Ubangi-Uele from the right. The Congo has but one mouth and no delta; it brings down a volume of water exceeded only by the Amazon. From its mouth, 6 miles wide, a steamer drawing 15 ft. can steam up 110 m. From 1879, Mr. Stanley, as representative of the African International Association, under the presidency of

the King of the Belgians proceeded to open the Congo to commerce and civilization; and by 1884 had established 30 stations on the river, constructed roads in the cataract region, and launched steamers. From the great lake-like expanse of Stanley Pool, in 15° 47′ e. long., vessels can steam 1,000 m. up into the heart of Africa

CONGO, INDEPENDENT STATE OF: monarchy in central Africa, founded 1885, Feb. 26, under the individual sovereignty of Leopold II., King of the Belgians. An international geographical conference, convoked by Leopold II., took place at Brussels in 1876, Sept. It organized the African International Association for opening Africa and developing its resources. Belgium, Germany, Great Britain, France, Hungary, Holland, Spain, Switzerland and the United States were officially represented in the association. The state is the outgrowth of this organization. Henry M. Stanley (q. v.) was engaged in 1879, Feb., to lead an expedition to acquire territory by purchase and treaty. The new state comprises the territory on the n. bank of the Congo river from its mouth to Manyanga; from the mouth of the Likoma it extends n. to lat. 4° n., e. to long. 30° e., s. to Lake Bangweolo, 12° s., w. to long. 24° e., n. to and along 6° and 8° s., and thence w. to the s. bank of the Congo at Nokki; about 1,056,200 sq. m.; pop. variously estimated at from 30,000,000 to 11,000,000. The general exports and imports were estimated, 1874, about $3,000,000 each. In 1903, these figures had risen to $13,708,337 exp. and $5,177,186 imp. The chief exports are rubber, ivory, coffee, cocoa, rice, tobacco, copal, ground-nuts, palm-nuts, palm-oil; gold, copper and other metals have been discovered. The central govt. is at Brussels and comprises King Leopold and three chiefs of depts.—those of foreign affairs, finance and interior; local direction is vested in a governor-general, who administers through the 7 depts. of justice, public works, administrative service, agriculture and industry, defensive works, army, finance. For administrative purposes the state is divided into 14 districts each with a capital town: the districts are Banana, Boma, Matadi, Cataracts, Stanley Pool, Eastern Kwango, Ubangi, Stanley Falls, Lualaba-Kasai, Lake Leopold II., Equator, Aruwimi, Bangala, Uele. The Lado Enclave, held by convention with England, only during the lifetime of Leopold II., is administered as part of the district Uele. On 1903, May 20, England invited international union looking toward a protest by the powers against ill-treatment of the natives by the state; to this invitation only Turkey has so far (1907) indicated acceptance. Agitation of the matter has been kept up by Congo Reform Associations in Great Britain and the United States. An international commission for the investigation of these alleged abuses was appointed by King Leopold 1904, July 23. Its report dated 1905, Oct. 31, led to the appointment on that date of a commission of reforms, consisting of 14 members.

CONGOON, or KONGUN, *kŏn-gôn′:* town of Persia, on the Persian Gulf, 130 m. s. of Shiraz. It has an excellent and safe roadstead; and both wood and water, generally scarce in the gulf, may be obtained here. Pop. 6,000.

CONGRATULATE, v. *kŏn-grăt′ū-lāt* [L. *congratŭlātus*, having wished joy warmly—from *con*, *grat′ulor*, I wish joy: It. *congratulare:* F. *congratuler*]: to profess one's joy to another on account of some event deemed happy or fortunate; to wish joy to another. CONGRAT′ULATING, imp. CONGRAT′ULATED, pp. CONGRAT′ULA′TION, n. *-lā-shŭn* [F.—L.]: the act of expressing joy or good wishes to another—commonly used in plural. CONGRAT′ULA′TOR, n. *-tėr*, one who. CONGRAT′ULA′TORY, a. *-lā′tėr-ĭ*, expressing joy for the good fortune of another.

CONGREE, v. *kŏn-grē′* [L. *con;* F. *gré*, will, inclination —from L. *grātus*, pleasing, agreeable]: in *OE.*, to agree; to accord; to unite. CONGREE′ING, imp. CONGREED, pp. *kŏn-grēd′*.

CONGREET, v. *kŏn-grēt′* [*con*, and *greet*]: in *OE.*, to greet or salute mutually. CONGREET′ING, imp. CONGREETED, pp. *kŏn-grēt′ĕd*.

CONGREGATE, v. *kŏng′grĕ-gāt* [L. *congrĕgātus*, collected into a flock—from *con*, *grĕgĕm*, a flock, a herd]: to collect persons or things into one place; to bring into a crowd; to assemble; to meet: ADJ. collected; compact. CON′GREGA′TING, imp. CON′GREGA′TED, pp. CON′-GREGA′TION, n. *-gā′shŭn* [F.—L.]: a collection of various parts brought together; an assembly of persons; a number of persons met for divine worship; an academical assembly. CON′GREGA′TIONAL, a. *-shŭn-ăl*, pertaining to an assembly of persons; denoting those known as Independents or their system of church government. CON′GREGA′TIONALISM, n. *-ĭzm*, the system of church government in which each church or congregation exercises complete control of its own affairs, yet professing to be under the law of Christ, and to hold itself amenable to all the claims of Christian fellowship. CON′GREGA′TIONALIST, n. *-ăl-ĭst;* one who holds to the complete independence of each church as regards any external human authority; an Independent.

CONGREGATION: an assembly, generally a religious assembly; in its most ordinary use, an assembly of Christians met in one place for worship (see CHURCH.) In the Rom. Cath. Church, it often designates a sort of board of cardinals, prelates, and divines, to which is intrusted the management of some important branch of the affairs of the church. Thus the *Congregation of the Index* examines books and decides on their fitness for general perusal: see INDEX. The *Congregation de Propaganda Fide* consults as to the advancement of the Rom. Cath. religion throughout the world: see PROPAGANDA. The *Congregation of Relics* inquires into the genuineness of supposed relics. The *Congregation of the Holy Office* takes cognizance of heresies, etc.; see INQUISITION. The *Congregation of Rites* regulates the festivals and offices of new saints. There are numerous other congregations.

CONGREGATIONALISM.

CONGREGATIONALISM: the principle in church polity, that every local church or congregation of Christ's disciples, has the power and the duty 'to elect its own officers, to manage all its own affairs, and to stand independent of, and irresponsible to, all authority, saving that only of the Supreme and Divine Head of the Church, the Lord Jesus Christ.' Congregational churches regard the Sacred Scriptures as their only standard, and hold that human traditions, historic usages, fathers and councils, canons and creeds, have no rightful authority over the faith and practice of Christ's disciples; though they freely concede that many of these things, if taken merely for advice or guidance, and in no sense for law, are found useful by individual Christians or by churches. Congregationalism denies that there is any authority in Scripture for uniting the churches of a nation or province into one church or corporation to be ruled by a bishop or bishops superior to the bishops or pastors of particular congregations, or to be ruled by a presbytery or synod consisting of the pastors or elders of the several congregations of the nation or province. This is the specialty which distinguishes Congregationalism from Episcopacy and Presbytery. The term 'Independent' until recent years has been the usual designation in England for churches holding this principle. But the early maintainers of this form of church government were careful to repudiate certain inferences which might be drawn from the use of the word Independent. The independence claimed is compatible, it is asserted, with a close union for promotion of common ends, and with fraternal aid and council in cases of variance or other difficulty. Indeed the very relation of fellowship in which all the churches stand with each other through Christ, is held by them to involve necessarily their readiness to ask, to give, and to receive advice and counsel from each other in the spirit of Christian meekness and love—especially in all matters in which the action of a church involves its neighbor churches. See COUNCIL (in Congl. churches).

Doctrinally, the early Congregationalists occupied the same position as the other sections of the Puritan family. They held in substance the evangelical doctrines of the Reformers, of the Westminster Assembly, and of the Thirty-nine Articles. While declining subscription as a body to Creeds of man's devising, freely recognizing the right of each congregation to formulate its faith in its own way and frankly tolerant of very considerable diversities of opinion, modern churches known as Congregational profess to be of one mind in regard to the cardinal truths of Christianity, which they view as centering in the person and work of Jesus as the Christ and the Son of God.

The beginnings of Congregationalism in later times, were in the 16th century. These its advocates claimed to have been a modern revival of principles, which, shortly after the apostolic days, had been lost sight of in the church—a claim denied by the upholders of other

forms of government. In England, at the Reformation the church became wholly national, retaining the Episcopal organization inherited from ancient times; and becoming a part of the governmental order, having its headship vested in the crown. But there were multitudes in England who objected to several features of the constitution then established, and advocated carrying to a greater degree the work of reformation. Some maintained that there was no Scriptural authority for the Episcopal order, and that hence government of churches and superintendence of ministers should be vested not in an individual, but in synods and presbyteries; these formed the Presbyterians. Others held the belief that each congregation of 'faithful men' was a church in itself, competent—when properly constituted—to its own direction, under Christ as the only law-giver, without interference from Presbyteries, bishops, or from the state itself; these were Independents or Congregationalists. The separation of the church from the domination of the state was considered necessary both to its purity and to national liberty. The state refused to be governed by the church; and the church came to the belief that if God never organized it for the administration of civil affairs, He certainly never placed it in the power of the state to destroy indvidual responsibility, or limit the faith and practice of Christians by the compulsion of a state religion.

The beginnings of modern Congregationalism date back to the reign of Elizabeth and connect themselves with the radical wing of the Puritan movement. Its first definite manifestation in separate organization is often associated with the congregation broken up by the authorities at London in 1567, of which Richard Fitz was minister. Its more extensive development and the first effective advocacy of Congregational principles, in writing, in England, was by Robert Browne, a graduate of the University of Cambridge in 1572. In 1580, he established a Congregational church in Norwich which was speedily compelled to seek refuge in Holland, where Browne published several tracts in defense of his principles, in 1582 and 1583, the most important of which is that entitled *A Booke which Sheweth the life and manners of all true Christians.* Browne himself conformed to the English Establishment in 1585, and the use of the name 'Brownist' as a designation of their polity was resented by early Congregationalists. The views which he had advocated during his period of Congregational activity was taken up in slightly modified form by Henry Barrowe, a London lawyer, John Greenwood and Francis Johnson, clergymen of the Establishment, and John Penry, all graduates of the University of Cambridge. Under their leadership, a literary campaign was conducted, and a Congregational church was formed in London, in 1592. Opposed by the authorities, Barrowe, Greenwood and Penry were hanged in 1593, and the London

church, under the leadership of Johnson, compelled soon after to seek refuge in Holland. Radical Puritan efforts in a district 150 miles north of London resulted a little later, probably in 1606, in the formation of congregations in Scrooby and Gainsborough. That first named was under the leadership of Richard Clyfton, John Robinson and William Brewster, and had William Bradford as one of its members. Both congregations were compelled to seek refuge in Holland in 1607–8, and that from Gainsborough settled at Amsterdam under the leadership of John Smythe, who became a Baptist in 1609. The same year, that from Scrooby, which had settled at Amsterdam, moved to Leyden. A portion of it under the spiritual leadership of Elder William Brewster emigrated from Leyden across the Atlantic in the Mayflower and established Congregationalism at Plymouth, in 1620. These early Congregationalists were known as 'Separatists,' because they insisted upon the necessity of immediate separation from the Establishment rather than proposed awaiting its further reformation by governmental authority as did the Puritans.

With the growth of the Puritan party in England and the increasing bitterness of its contests with the Crown and with the dominant Anglicanism under James I. and Charles I., many Puritans began to look upon emigration to the new world across the Atlantic as desirable that they might practice there the civil and religious reformation for which they believed that there was no opportunity in England. Such a Puritan company settled in Salem, Mass., in 1628, and was largely reinforced the following year, when a charter for the Massachusetts Colony was procured from Charles I. At Salem, a church was formed on the Congregational pattern, in 1629 Puritan emigration now flowed rapidly. In 1630, Boston, Dorchester and Watertown, Massachusetts, were settled, and Congregational churches established in each. Other Puritan colonies were established; that of Connecticut, including originally the towns of Hartford, Windsor and Wethersfield, in 1635–6, and that of New Haven in 1638. All these united in a confederacy for mutual protection, in 1643. Among the leaders of this emigration were John Winthrop, John Haynes and Theophilus Eaton, all prominent in civil affairs, and the ministers John Wilson, John Cotton, Thomas Hooker, Richard Mather, John Eliot, and John Davenport. Taken as a whole, this body of emigrants for conscience's sake, was of high quality and its leaders prevailingly men of university education, character and force.

The outbreak of the great civil war in England and the prospect thereby held out to the Puritans that their aims could be achieved in the homeland, led to an almost complete cessation of emigration to New England. Congregational principles were represented in the Westminster Assembly by 10 or 11 of its members, though that Synod was prevailingly Presbyterian; but Inde-

pendency found strong support in the army, and protection from Oliver Cromwell, who sympathized with it. Under the commonwealth Congregationalism rapidly grew in England, and a modification of the Westminster Confession was adopted by an Assembly representative of the Congregational churches of England which met at the Savoy Palace in London, in October 1658. This is known as the 'Savoy Declaration.' With the Restoration, however, the English Congregationalists, in company with other Dissenters from the Establishment, came under severe repression. Among the measures enacted may be mentioned the Corporation Act, 1661, the aim of which was to disqualify Nonconformists for holding municipal office; the Act of Uniformity, 1662, by which public worship other than by the book of Common Prayer was forbidden, and 'unfeined assent' to 'all and everything' in that book was required. This Act resulted in an extensive exclusion of Nonconformists from the pulpits then occupied by them, and the number thus removed is said to have been nineteen hundred or two thousand. The Act of Uniformity was supplemented by the Conventicle Act, 1663, which prohibited the presence, for worship, of more than five persons beyond the actual family, save in conformity to the ritual of the Church of England; the Five-Mile Act, 1665, which prohibited Nonconformist ministers from living within five miles of incorporated towns and cities, or of the place where they had exercised their ministry; and the Test Act, 1673, which required participation in the Lord's Supper according to the usage of the Church of England as a condition to holding office in London, or within thirty miles of that city. The 'Declaration of Indulgences' issued by Charles II. in 1672, gave English Congregationalists the hope of toleration, but that was not realized till 1689, when the Toleration Act, enacted after the revolution of 1688 had placed William and Mary on the throne, granted them and other Dissenters a limited freedom to hold property and conduct worship. In 1691 a short-lived union of Congregationalists and Presbyterians in London and its vicinity was established; but their development continued, in the main, on divergent lines. English Congregationalists founded a number of colleges for the training of ministers and of laymen, intending to supply the education which the difficulties placed in the way of Dissenting students long made impossible of attainment in the universities. The present list of these institutions is as follows (when two dates are given, the earlier is that of the foundation, the later that of the present organization or location: Corinathen Presbyterian College, shared with Congregationalists (1662, 1719); New College, London (1696, 1850); Western College, Bristol (1752, 1901; Cong. Memorial College, Brecon, Wales (1755, 1839); Yorkshire United College (1756, 1888); Chestnut College, Cambridge (1768, 1905); Hackney College, Hamstead (1803, 1887); Lancashire

College, Manchester (1816, 1842); Mansfield College, Oxford (1838, 1886); Bala-Bangor Independent College (1843); Cong. Institute, Nottingham (1861).

With the 19th c. increasing sense of the desirability of union led to the formation, in 1832, of the 'Congregational Union of England and Wales,' though its constitution carefully guards the liberties of the local churches by the proviso that, 'it shall not in any case assume legislative authority or become a court of appeal.' The Congregational churches of England and Wales now number 4,633, with a membership of 440,919. Their foreign missionary work has been conducted, since 1795, by the London Missionary Society, originally undenominational in character, but for many years past distinctly Congregational in its support.

In Scotland, Independency can be traced back to the beginnings of the commonwealth, during which it was imported by the chaplains and soldiers of Cromwell; but the present Congregational churches in Scotland owe their origin to movements at the close of the 18th c., led by James and Robert Haldane, Greville Ewing, John Campbell and John Aikman. Eighty-five churches were formed between 1798 and 1807. The Haldanes adopted Baptist views in 1808; and, as a consequence, the small Congregational communion of Scotland was greatly divided. Its vitality enabled it, however, to found a theological academy at Glasgow, in 1811,—since removed to Edinburgh, and now known as the 'Theological Hall of the Congregational churches of Scotland,'—and to organize the 'Congregational Union of Scotland,' in 1812. The Congregational churches of Scotland now number 220, with a membership of 35,558.

Returning to the history of Congregationalism in the United States, it may be observed that its controversies during the 17th c. were mainly upon questions of polity rather than of theology. These led to the Cambridge Synod, 1646–8, by which the 'Cambridge Platform,' a statement of Congregational principles, was formulated; to the Ministerial Convention of 1657, and the Massachusetts Synod of 1662, both held in Boston, by which the right of the children of church members to partial membership in the church was asserted (the system known as the 'Half-Way Covenant'); and the so-called Reforming Synod, held in Boston, 1679–80, by which the Savoy Declaration was approved. Congregational desire for an educated ministry led to the establishment of Harvard College in 1636, and of Yale College in 1701,—the beginnings of a series of educational foundations which have continued in increasing numbers to the present time.

The 18th c. in New England, was marked by the revival movements of 1740–41, known as the 'Great Awakening,' in which George Whitefield was the principal preacher, though with much assistance from American ministers, of whom Jonathan Edwards is the most conspicuous

example. The Awakening was followed by a period of theological discussion, of which a distinctive school of New England theology, essentially Calvinistic in type, but modified from the older Calvinism, was developed under the leadership of Jonathan Edwards, Sr., Joseph Bellamy, Samuel Hopkins, Jonathan Edwards, Jr., and Timothy Dwight. This school was warmly evangelistic and strongly missionary in its sympathies. Contemporaneously there developed a 'Liberal' movement in eastern Massachusetts, which, though manifested by the middle decades of the 18th c., was not conspicuous until after the Revolutionary War, and was much influenced by contemporary Christological and anthropological discussions in England. The result of this movement, especially when brought into conflict with the revivalistic evangelism of the Edwardean School, was the Unitarian division, manifested in the control of Harvard University obtained by the Liberals in 1805, and fully developed by 1815.

With the close of the 18th c. and the beginning of the 19th came a great development of Congregational activities. In 1798, the Missionary Society of Connecticut was founded, for the spread of Christianity to the new settlements and to the westward, and among the Indians; in 1799 the Massachusetts Missionary Society, with similar purposes, came into being; in 1808, Andover Theological Seminary was opened, for ministerial training; in 1810, the American Board of Commissioners for Foreign Missions was established; 1816 saw the beginnings of the Congregational Education Society; in 1816, Bangor Theological Seminary began ministerial instruction; in 1822, the Theological Department of Yale College was inaugurated; in 1826 the American Home Missionary Society, now Congregational Home Missionary Society, was established; 1834 witnessed the foundation of what is now Hartford Theological Seminary; and in 1835, the Theological Department of Oberlin College was established; in 1846 the American Missionary Association came into being; in 1858, Chicago Theological Seminary was opened, and in 1860, Pacific Theological Seminary, now at Berkeley, California. In 1901 a Theological Seminary was founded in Atlanta, Georgia.

At the opening of the 19th c., Congregationalists and Presbyterians were united in an agreement known as the 'Plan of Union,' regulating the conduct of home missionary activity, and under its provisions a very considerable portion of the churches of these two communions in what is now the middle west, were formed. Dissatisfaction with the 'Plan of Union' on the part of the Presbyterians, especially of the Old School wing, on the alleged ground that it permitted doctrinal laxity, and on the part of the Congregationalists for the reason that it facilitated, though unintentionally, the establishment of Presbyterian rather than Congregational, churches, led to movements in both denominations for

its discontinuance, and resulted in the calling, in 1852, of the 'Albany Convention,' in which the Congregational churches of the United States were represented, the 'Plan of Union' abrogated, and a movement inaugurated which resulted in the formation of the Congregational Church Building Society. In 1865, at the close of the Civil War, a 'National Congregational Council' was held in Boston, by which a brief statement of faith known as the 'Burial Hill Declaration,' from the place of its presentation in Plymouth, Mass., was adopted. So successful were these conventions in representing the type of Christianity characteristic of the Congregational churches of America, that in 1871, the 'National Council of Congregational Churches,' holding triennial sessions, was organized at Oberlin. At its session in St. Louis, in 1880, a Commission was appointed to prepare, in the form of a creed or catechism, or both, 'a simple, clear, and comprehensive exposition of the truths of the glorious Gospel of the blessed God, for the instruction and edification of the churches.' This Commission presented to the public, in December 1883, a Statement of Doctrine, which has been found acceptable by many churches, but is in no sense an authoritative standard imposed upon any church. An International Congregational Council, representative of Congregationalism of all lands was held in London in 1891, and a second similar Council in Boston in 1899.

Doctrinally, the 19th c. has been a period of modification and discussion with the Congregational, as with other religious communions. In the earlier portion of the century the School of Edwards which had arisen in the 18th c. was dominant, though with various modifications by such teachers as Timothy Dwight, Nathanael Emmons, Leonard Woods, Nathaniel W. Taylor, Bennett Tyler and Edwards A. Park. A departure from its prevailing methods in theology of much significance was inaugurated by Horace Bushnell, and during the latter part of the 19th c. the Congregational churches of America have responded to the movements in biblical criticism and theological discussion which are characteristic of all protestant Christianity at the present time rather than peculiar to any one religious body.

The benevolent activities of the Congregational churches of the United States are carried on at the present time, by the following organizations: the 'American Board of Commissioners for Foreign Missions,' organized at Bradford, Mass., 1810, June 29, occupying (1907) mission fields in Turkey, Central and South Africa, India, Ceylon, China, Japan, Micronesia, Mexico, Spain, Austria, and the Philippine Islands. Its missions number 20, divided into 104 stations, and 1,393 out-stations; and employing 566 missionaries, with 4,064 native workers. Its churches number 589, with 66,724 members; it supports 1,571 schools, including 13 theological seminaries, 15 colleges, and 143 boarding and high schools; and the

whole number of pupils under instruction is 64,087. The income of the Board for the year ending Aug., 1906, was $913,159.64. The 'Congregational Education Society,' organized in 1816, has aided 9,275 candidates for the Christian ministry, and has distributed for that purpose $1,174,207. During the year ending in 1906 its income was $106,396, and during the ninety years of its existence then ending, it reported total receipts of $5,527,397. The number of colleges aided last year was 5, and of academies 19. The 'Congregational Home Missionary Society,' organized in 1826, reported that for the year ending in March 1906, it had employed 1,641 missionaries and had aided 2,216 churches. Its income for the year was $494,329. Since its organization the Society has collected and disbursed $23,383,056, and has organized 7,036 churches with a membership of 529,945. Of these churches 3,286 have come to self-support. The 'American Missionary Association,' organized in 1846, is devoted to Christian education and evangelization among various races in America,—White, Negro, Indian, Alaskan, Porto Rican, Chinese, Japanese, Hawaiian. Its chartered institutions are Fisk University, Tenn.; Talladega College, Ala.; Tougaloo University, Miss.; Straight University, La.; Tillotson College, Texas; Piedmont College, Ga.; Highland College, Ky.; Atlanta Theological Seminary, Ga. Schools of various grades, 94; pupils, 17,291; missionaries, 808; churches, 238; church members, 14,452. Income for the year ending September 1906, $499,761.17. The 'American Congregational Association' was organized in 1854, to promote the interests of Congregationalism by maintaining a library and a building which might be the centre for denominational activities. It owns and maintains a 'Congregational House' containing the admirable Congregational library, at 14 Beacon Street, Boston, Mass. The 'Congregational Church-Building Society,' organized in 1853 to aid needy churches in building meeting houses and parsonages, has raised and distributed, in amounts from $50, to $150,000, funds to aid in building 3,783 meeting houses and 990 parsonages. It has put into this work more than $5,000,000, and by means of it more than $15,000,000 worth of church property has been secured. Its receipts for 1905 were $275,374, and it helped to build during that year 102 churches and 37 parsonages. The 'Congregational Sunday-school and Publishing Society' reported for the year 1906 that 60 superintendents and missionaries were in its employ, that 402 Sunday-schools had been established during the year, 215 Sunday-schools organized, and 70 churches developed from Sunday-schools in the care of this Society. The Society also conducts a business department which publishes Lesson Helps and other Sunday-school material; issues *The Congregationalist, The Well-Spring, The Pilgrim Visitor, The Mayflower* and *The Pilgrim Teacher;* and also issues books on general religious subjects. Its business department is self-

supporting and the contributions raised by the Society are used for religious work only. The National Council Ministerial Relief Fund' was established in 1886 for the relief of disabled ministers and the wives and orphans of deceased ministers. During the year closing in July 1906, it aided 43 ministers, 42 wives of ministers and 4 daughters of ministers, representing 211 dependent persons. Its income for the year ending July 1906 was $26,587.65, and its total income from its foundation to that date $311,028.01.

The statistics of the Congregational churches for the year 1905 are as follows, for the United States: churches 5,931, of which 1,140 are without stated pastoral supply; ministers 5,933, of whom 1,922 are without pastoral charge. Of these ministers 96 died during the year. The average age of ministers deceased during the 22 years ending in 1905 was 68 years; their average period of service 35½ years. Church members 684,322, of whom, males 230,100, females 454,222, an increase of 14 per cent. in total membership since 1895. Families 488,122; baptisms 28,262, of which adult 14,129 and infants 14,-133. Sunday-school members 668,736, a decrease of not quite 2 per cent. since 1895; young people's Christian Endeavor Societies 3,420; members 156,169. Total benevolent contributions for the year 1905, $2,353,024, home expenses $8,490,212; an average of $15.08 per member.

Congregationalism reports, outside the United States, as follows: Great Britain, 4,905 churches, 479,112 church members; Canada 131 churches, 16,606 members; Newfoundland 16 churches, with 234 members; British Guiana 51 churches, with 5,156 members; Australia, New Zealand and Tasmania 379 churches, with 17,428 members; South Africa 360 churches, with 15,715 members; Jamaica 45 churches, with 3,119 members; Japan 111 churches, with 11,611 members; India 13 churches, with 454 members; China 2 churches, with 293 members; Syria 2 churches, with 83 members; churches under care of the American Board 589, with a membership of 66,724. Total for world Congregationalism, 15,076 churches, with 1,300,426 members and 1,596,620 Sunday-school scholars.

See Dr. Vaughan's *History of English Nonconformity;* J. Fletcher's *History of Independency;* Waddington's *Early History;* Hanbury's *Memorials;* Neal's *History of the Puritans;* Dr. Stoughton's *Ecclesiastical History of England:* see also *The Congregationalism of the Last Three Hundred Years,* by H. M. Dexter, D.D.: *Genesis of the New England Churches,* by Leonard Bacon, D.D.; *Congregationalists in America,* by A. E. Dunning, D.D.; Walker's *History of Congregationalism,* and *Creeds and Platforms of Congregationalism;* James Ross's *History of Congregational Independency in Scotland;* Edward Arber's *Story of the Pilgrim Fathers;* H. M. and Morton Dexter's *The England and Holland of the Pilgrims;* L. W. Bacon's

The Congregationalists; E. Lyman Hood's *The National Council of Congregational Churches of the U. S.;* E. L. Heermance's *Democracy in the Church;* Dexter's *Handibook of Congregationalism; Council Manual for a Congregational Church.*

CONGREGATIONS, ROMAN: boards or committees of cardinals who have charge of certain matters and affairs of the Roman Catholic Church throughout the world. The Roman Congregations are as follows: (1) The Congregation of the Consistory; (2) The Congregation of the Holy Office of the Inquisition; (3) The Congregation of the Index; (4) The Congregation of Rites; (5) The Congregation of Immunities; (6) The Congregation of the Fabric; (7) The Congregation of the Council; (8) The Congregation of the Bishops and Regulars; (9) The Congregation of Discipline; (10) The Congregation of Propaganda; (11) The Congregation of Indulgences. There are minor Congregations which treat of subjects brought before them from time to time. Special Congregations are sometimes created, and commissions are frequently appointed to examine new questions that arise.

CONGRESS, n. *kŏng'grĕs* [L. *congressus,* a friendly meeting together—from *con, gressus,* a step, a course: It. *congresso:* F. *congrès*]: a meeting together; an assembly of persons for the settlement of affairs between different states or countries; the legislature of the United States of America. CONGRESSIONAL, a. *kŏn-grĕsh'ŭn-ăl,* pertaining to a congress. CONGRESSIVE, a. *kŏn-grĕs'sĭv,* coming together. CONGRESS BOOT, a high shoe or half-boot, coming up to the ankles, and having the sides made in part of some elastic material.—SYN. of 'congress': assembly; convention; convocation; meeting; synod; diet; council.

CON'GRESS: assembly either of sovereign princes, or of the delegated representatives of sovereign states, for the purpose of considering matters of international interest. Even in America, though the term has now a different meaning (see CONGRESS, UNITED STATES), it had a similar origin, the first congress being that of the delegates from the various British colonies, who met 1765, Oct. 7, for the purpose of considering their grievances under the British crown. Previous to signing a treaty of peace, a meeting of plenipotentiaries usually takes place, to which the name of a congress is sometimes applied, though it seems more properly reserved for those more important meetings at which extensive schemes of future policy are determined on, and the balance of power among the various European states readjusted. To this class belonged the famous congress of Vienna 1815; the congress of Carlsbad 1819, for regulating the affairs of Germany, the Paris congress at the termination of the Russian war of 1854-56; the memorable congress at Berlin after the Russo-Turkish war of 1877-8; and many others.

CONGRESS, UNITED STATES: the national legislature:

consisting of a senate composed of two members from each state, elected by state legislatures for a term of six years, and a house of representatives composed of members elected by the people for a term of two years, the total number being based on an apportionment to population made after each national census, each state and territory, however, being allowed at least one representative whatever its population may be. The senate consisted 1907 of 90 members, and the house of 386. The apportionment of 1900 fixed the number of representatives at 386 after 1903, Mar. 4, viz.: Alabama 9, Arkansas 7, California 8, Colorado 3, Connecticut 5, Delaware 1, Florida 3, Georgia 11, Idaho 1, Illinois 25, Indiana 13, Iowa 11, Kansas 8, Kentucky 11, Louisiana 7, Maine 4, Maryland 6, Massachusetts 14, Michigan 12, Minnesota 9, Mississippi 8, Missouri 16, Montana 1, Nebraska 6, Nevada 1, New Hampshire 2, New Jersey 10, New York 37, North Carolina 10, North Dakota 2, Ohio 21, Oregon 2, Pennsylvania 32, Rhode Island 2, South Carolina 7, South Dakota 2, Tennessee 10, Texas 16, Utah 1, Vermont 2, Virginia 10, Washington 2, West Virginia 5, Wisconsin 11, Wyoming 1: also 5 delegates from territories—Arizona 1, New Mexico 1, Alaska 1, Hawaii 1, and Porto Rico 1. After 1907 Oklahoma (admitted as a state 1906) will have 5 representatives and 2 senators. The vice pres. is *ex-officio* pres. of the senate; the speaker of the house is chosen by the representatives from their number at the beginning of a new congress. The house originates all bills providing for the raising of money, and the senate may make amendments thereto. The senate confirms a variety of executive appointments and has the sole power of trying impeachments, and can convict, remove from office, and impose a disqualification from holding any office of honor or trust under the govt. only by a two-thirds vote of members present. No person under 25 years of age is eligible to membership in the house of representatives, and none under 30 to the senate. Congress meets in regular session on the first Monday in Dec. of each year. A vacancy occurring by death, resignation, or other cause in the house is filled by a special election in the interested congressional district; occurring in the senate, it is filled by appointment by the gov. of the state interested if the legislature is not in session, and by election by it if it is. The pres. of the United States has the right to approve or disapprove of all bills passed in both houses. Hence all bills passed are sent to him. If he approve a bill his signature is the last act needed to make it operative; if he disapprove it he returns it with his objections to the house in which it originated; it may then be taken up on reconsideration and if two-thirds the members of each house again pass it, it becomes a law over his veto. See BILL, in Legislation. The first congress met in Philadelphia 1774, Sep. 5, and made a declaration of the rights and wrongs of the American colonies, and recommended that the colonies should not import British goods after 1774, Dec. 1, nor export

goods to Great Britain, Ireland, or the W. Indies after 1775, Sep. 10, unless their wrongs were righted in the meantime. It also provided for the immediate election of delegates to a second congress to be held in Philadelphia 1775, May 10. Of this body Peyton Randolph of Va. was first chosen pres., but soon afterward being obliged to return home, John Hancock of Mass., was elected in his stead. Hostilities having occurred between the British and the colonial militia, George Washington, a delegate from Va., was unanimously appointed commander-in-chief of all the colonial forces 1775, June 14. The citizens of Mecklenburg co., N. C., assembled in convention, formally severed themselves forever from all allegiance to the crown of Great Britain, 1775, May 20, and 1776 Jan., Massachusetts instructed her delegates in the second congress to vote for independence; South Carolina forwarded like instructions March, Georgia and North Carolina April, Virginia, New Hampshire, New Jersey and Maryland, June. Under the encouragement of these instructions a resolution was adopted June 11, providing for the appointment of a committee to prepare a declaration of independence and another to prepare articles of confederation. The former was adopted 1776, July 4, and the latter went into force through ratification by a majority of the colonies 1781, Mar. 1, though presented in congress 1777, Nov. 15. The colonial congress thus gave way to the congress of the confederation 1781, Mar. 2. The articles of confederation formed the supreme law of the land till the adoption of the constitution of the United States by a majority of the states 1788, and the inauguration of the new federal govt. 1789. Since then the number of representatives in the house has increased under decennial appointments as follows: (1789) 65; (1793) 105; (1803) 141; (1813) 181; (1823) 213; (1833) 240; (1843) 223; (1853) 234; (1863) 243; (1873) 293; (1883) 325; (1893) 357; (1903) 386. The seat of early congresses depended on exigencies of the military service, viz: 1774, Sep. 5—1774, Oct. 26, Philadelphia; 1775; May 10—1776, Dec. 12, Philadelphia; 1776, Dec. 20—1777, Mar. 4, Baltimore; 1777, Mar. 4—1777, Sep. 18, Philadelphia; 1777, Sep. 27, Lancaster, Penn.; 1777, Sep. 30—1778, June 27, York, Penn.; 1778, July 2—1783, June 21, Philadelphia; 1783, June 30—1783, Nov. 4, Princeton; 1783; Nov. 26—1784, June 3, Annapolis, Md.; 1784, Nov. 1—1784, Dec. 24, Trenton, N. J.; 1785, Jan. 11—1785, Nov. 4, New York; 1785, Nov. 7—1786, Nov. 3, New York; 1786, Nov. 6—1787, Oct. 30, New York; 1787, Nov. 5—1788, Oct. 21, New York. The permanent seat of govt. was established by act of 1790, June 28, by which also congress was to meet in Philadelphia till the first Monday in Nov. 1800, and then remove to the Potomac. The place was officially known as 'The Federal City' till 1791, Sep. 9, when the name was changed to 'The City of Washington' and congress became located there 1800, Nov. 17. Nearly all the business of congress is done by its various standing committees, of which there are

FIRST PRAYER IN CONGRESS.

now 48 in the house and 32 in the senate, and by special committees appointed from time to time. The membership ranges from 15 to 3, and the dominant political party receives the majority of chairmanships. Members are appointed to them by the pres. of the senate and the speaker of the house for the term of the current congress. The standing committees of the house in order of appointment include the committees on elections; ways and means; appropriations; judiciary; banking and currency; coinage, weights, and measures; commerce; rivers and harbors; merchant marine and fisheries; agriculture; foreign affairs; military affairs; naval affairs; post-office and post-roads; public lands; Indian affairs; territories; railways and canals; manufactures; mines and mining; public buildings and grounds; Pacific railroads; levees and improvements of the Mississippi river; education; labor; militia; patents; invalid pensions; pensions; claims; war claims; private land claims; Dist. of Col.; revision of the laws; expenditures in the state dept.; expenditures in the treas. dept.; expenditures in the war dept.; expenditures in the navy dept.; expenditures in the post-office dept.; expenditures in the interior dept.; dept. of justice; dept. of agriculture; expenditures on public buildings; rules; accounts; mileage; enrolled bills; joint committee on library; and joint committee on printing. The senate standing committees include: committees on agriculture and forestry; appropriations to audit and control the contingent expenses of the senate; census; civil service and retrenchment; claims; coast defenses; commerce; Dist. of Col.; education and labor; engrossed bills; enrolled bills; epidemic diseases; to examine the several branches of the civil service; finance; fisheries; foreign relations; immigration; improvement of the Mississippi river and its tributaries; Indian affairs; interstate commerce; judiciary; library (joint); manufactures; military affairs, mines and mining; naval affairs; on organization, etc., of executive departments; patents; pensions; post-offices and post-roads; printing (joint); private land claims; privileges and elections; public buildings and grounds (joint); public lands; railroads; revision of the laws; revolutionary claims; rules; territories; and transportation routes to the seaboard. The principal select committees of the senate are: to investigate condition of river front of Washington; to inquire into claims of citizens of the United States against Nicaragua; woman suffrage; additional accommodations for the library of congress; quadro-centennial; Indian traders; the five civilized tribes of Indians; transportation and sale of meat products; relations with Canada; and irrigation and reclamation of arid lands. The president *pro tem.* of the senate and the speaker of the house receive an annual salary of $12,000, and senators and representatives $7,500, with a mileage of 20 cents per mile of travel to and from Washington each annual session, and an allowance of $125 per annum for stationary and newspapers. See UNITED STATES.

CONGRESS, LIBRARY OF: formerly in the w. projection of the Capitol building in Washington, founded by act of congress 1800, and started with an appropriation of $5,000 to purchase books of reference for the two houses of congress. Prior to 1814 the books were in charge, *ex-officio,* of the clerk of the house of representatives; and in that year, when the collection comprised only 3 000 volumes, the library was destroyed in the burning of the capitol by the British. The following year congress bought ex-Pres. Jefferson's private library of 6,700 volumes for $23,000 as a nucleus for a new library, and George Watterson was appointed the first regular librarian. In 1851 an accidental fire destroyed 35,000 of the 55,000 books then collected, and 1852 congress rebuilt its quarters and appropriated $75,000 to replace and enlarge the collection. In 1866, the library of the Smithsonian Institution was removed to the new halls of the congressional library; 1867 congress purchased the great historical library of Peter Force, rich in manuscripts, books, maps, pamphlets, and periodicals; 1870 the adoption of the copyright law made the congressional library the sole office of record and receipt for every publication protected by copyright in America; and 1882, Dr. Joseph M. Toner, of Washington, presented the library his large private collection of more than 27,000 volumes, and nearly as many pamphlets. Fifty sets of government publications are placed at the service of the Library of Congress for international exchanges through the Smithsonian. Other special accessions have been: the (Count de) Rochambeau collection (manuscript), purchased 1883, cost $20,000; the Hubbard collection (engravings), gift in 1898 of Mrs. Gardiner G. Hubbard; in 1905, 72 manuscript maps once owned by Richard, first Earl Howe, and 860 letters received by President VanBuren.

The collection in the main library now comprises 1,344,618 books, 250,000 pamphlets, 26,500 manuscripts, 82,744 maps and charts, 410,352 pieces of sheet music, and 183,724 photographs, prints, engravings, and lithographs. Of the printed books, probably one third are duplicates. The law library of 110,978 volumes (which remains at the capitol) is not included in the above. The main collection is rich in Federal documents, history, political science, jurisprudence, and Americana in general, including important files of American newspapers and original manuscripts (colonial revolutionary, and formative periods). The exhibition cases on the second floor contain many rare books, including the records of the Virginia Company. The Smithsonian deposit is strong in scientific works, and includes the largest assemblage of the transactions of learned societies which exists in this country.

What were known as the new library halls, three in number, were fitted with ornamental iron cases and iron ceilings, the whole being perfectly fire-proof. These halls are now used for other purposes, the books having all been removed, 1897. The accessions to the congressional library

are by purchase with annual appropriations by congress averaging $90,000, by copyright additions, by exchanges, and by receipts from the Smithsonian Institution. The new library building was opened in 1897 and authorized by acts of Congress of 1886, April 15; 1888, Oct. 2 and 1889, Mar. 2, at a cost of $6,347,000 (limit by law), $6,500,000, exclusive of the land, which cost $585,000, The building occupies three and three quarter acres upon a site 10 acres in extent at a distance 1,270 feet east of the capitol, and is the largest and most magnificent library building in the world. In the decorations, some 40 painters and sculptors are represented, all American citizens. The floor space is 326,195 square feet, or nearly eight acres. The book stacks contain about 45 miles of shelving, affording space for 2,200,000 volumes. Were the long corridors, now used in part for exhibition purposes, completely shelved, the building would accommodate over 4,000,000 volumes. The library contains a reading room for the blind, open daily. The library is maintained by annual appropriations by Congress for various purposes.

CONGRESSIONAL RECORD: a journal of the proceedings of the Congress of the United States, dating from 1799. Prior to that date the senate held secret sessions only, but thereafter publication was required, save in the case of 'executive sessions.' *Record* has been the title since 1875; before that date the journal was entitled *Annals of Congress* (1789-99 for the house, and 1799-1824 for both branches), *Register of Debates* until 1837, and through 1874 *Congressional Globe*. Undelivered speeches on the grant of 'permission to print' appear in the *Record* as if they had actually been given, and stenographic reports of debates are revised by the participants before being printed.

CONGRESSMAN AT LARGE: a national representative elected by the entire state and not as a member for some district. There is no permanent system of the sort, though many able political thinkers have wished for it, and believed it would greatly raise the average of ability in the house; preventing the restriction of choice to the mediocre notabilities who chance to reside in a given district. In fact, however, there is no legal obstacle now to the voters of a district electing an outsider if they wish; but they rarely wish it, and if the general system were introduced, the experience of other political affairs makes it probable that the memberships would be 'claimed' by given districts in rotation. At present, the only use of the plan is in giving a state the fresh memberships assigned to it by the apportionment under a new census, until it can be redistricted, which is sometimes a long process with fierce political opposition. Many states have had one congressman at large, and some two.

CONGREVE, *kŏn'grēv*, Richard, English essayist: b. Leamington, Eng., 1818, Sep. 4; d. Hampstead, Eng., 1899, July 5. He was educated at Rugby and Oxford and

was subsequently a tutor in Wadham College, Oxford, resigning his post on becoming a Positivist. Beside editing Aristotle's *Politics* with notes (1855); he published *The Catechism of Positivist Religion* (1858); *Elizabeth of England* (1862); *Essays: Political, Social, and Religious* (1874).

CONGREVE, WILLIAM: abt. 1672-1729, Jan. 19; b. Bardsey, Yorkshire, England: second son of Richard C., of Congreve and Stretton. Educated at Kilkenny, and at Trinity College, Dublin, he returned to England 1688, and was entered at the Middle Temple, but he does not seem to have taken kindly to law. His first publication was a novel, entitled *Incognita, or Love and Duty Reconciled*, a performance which Dr. Johnson said he would rather praise than read, but which has been neither read nor praised by succeeding critics. His first play, *The Old Bachelor*, was produced at Drury Lane when Congreve was in his 19th year, and its success was remarkable. Next year he came out with *The Double Dealer*, a comparative failure; but his comedy *Love for Love*, published 1695, was a great success, and brought to its author money and fame. *The Mourning Bride*, a blank-verse tragedy, after the manner of the old passionate masters, came out in 1697. Its success was enormous, far exceeding that of his comedies, but it has long since fallen from its high estate. Two years later, he produced his comedy, entitled *The Way of the World*, which failed completely, and disgusted him with the theatre; though, according to some critics (as Swinburne), it is not merely the crowning work of Congreve's genius, but 'the unequalled and unapproached masterpiece of English comedy,' equal or nearly equal to Molière's best. In other respects Congreve was a fortunate man. He held various offices, which together yielded him an income of £1,200. Congreve affected to despise his theatrical triumphs, and cultivated the modish airs of the fine gentleman, an eccentricity which laid him open to rebuke when he was visited by Voltaire. In his later days, he was afflicted by gout and blindness. He died in London, and was buried in Westminster Abbey, nobles supporting the pall.

As a writer of comedies, Congreve holds a high place; he has been called 'the greatest English master of pure comedy.' His plays abound in brilliantly witty dialogue and lively incident, and the style is fine and clear-cut. But his plots are intricate; his dialogue is defiled by all the grossness of his age; and he has but few of those touches of nature that make the whole world kin.

CONGREVE ROCKET: see ROCKET.

CONGRUE, v. *kŏn-grô'* [L. *con'grŭō*, I agree with (see CONGRUENT)]: in *OE.*, to agree; to be suitable. CONGRUING, imp. *kŏn-grô'ĭng*. CONGRUED, pp. *kŏn-grôd'*.

CONGRUENT, a. *kŏn'grô-ĕnt* [L. *con'grŭĕns* or *congrŭĕn'tem*, agreeing together, harmonious: It. *congruenza*]: suitable; agreeing; harmonious. CON'GRUENCE, n. *-grô-ĕns*,

agreement. CON'GRUOUS, a. *-grô-ŭs* [F. *congru*—from **L.** *con'grŭŭs*]: accordant; suitable; consistent. CON'GRUOUSLY, ad. *-lĭ*. CONGRUITY, n. *kŏn-grô'ĭ-tĭ* [F. *congruité*]: the relation of agreement between things; fitness; reason. GRACE OF CONGRUITY, among the *old schoolmen*, the grace of God conferred on those whose good actions render a reward meet and equitable.

CON'GRUOUS, in Geometry: term descriptive of lines and figures which exactly correspond when laid over one another: see COINCIDENCE.

IN ARITHMETIC, two numbers are said to be congruous, with respect to a third, when their difference is exactly divisible by it. Thus, 12 and 7 are C. with respect to 5, as $\frac{12-7}{5}=1$, and so are 27 and 12, as $\frac{27-12}{5}=3$. The numbers considered must be whole numbers. When two numbers are congruous to a third, either is called a *residual* of the other with respect to the third.

CONI, *kō'nē*, or CUNEO, *kô-nā'o:* province in the s. of Piedmont, n.w. Italy; bordering on those of Alessandria, Genoa, Porto Maurizio, and Turin, and on France; area, 2,756 sq. m; cap. Coni. It is divided into the districts of Alba, Coni, Mondovi and Saluzzo, bordered on the w. by the Cottian and Maritime Alps, and watered by numerous tributaries of the Po river. Cattle-breeding and mining are the chief industries of the w. and farming of the e., the province yielding large crops of wheat, maize, rice, beside hemp and mulberries. Pop. 651,807.

CONI, *kō'nē*, or CUNEO, *kô-nā'ō:* capital of an Italian province; in a fruitful district, 48 m. s.w. of Turin. Its chief manufactures are silk and woolen cloth. Pop. 12,413.

CONIA, n. *kō'nĭ-ă* or *kō-nī'ă*, or CONIINE, *kō-nī'ĭn*, or CONEINE, n. *kō'nē-ĭn* [Gr. *kōneï'on*, hemlock]: the poisonous alkaloid of the plant hemlock.

CON'IC, CON'ICS, CONIF'ERÆ, CONIF'ERIN, CONIF'EROUS, etc.: see under CONE.

CON'IC SECTIONS: see CONE: CIRCLE: ELLIPSE: PARABOLA: HYPERBOLA.

CONIDÆ, n. *kō'nĭ-dē:* cones, a family of gasteropodous mollusks, order *Siphonostomata.*

CONIDIA, n. *kŏn-ĭd'ĭ-ă* [Gr. *konis*, a nit, the egg of a louse, flea, or bug; *konĭdos*, of a nit]: in *bot.*, peculiar spores in fungi which resemble buds. CONIDIIFEROUS, a. *kŏn-ĭd'ĭ-ĭf'ėr-ŭs* [L. *fero*, I bear or carry]: producing or bearing conidia.

CONIF'ERÆ [see CONE]: important nat. ord. of exogenous plants, containing the pines, firs, juniper, yew, etc.; agreeing with the other exogenous orders generally in the structure of the stem and in the mode of vegetation, but differing remarkably from most of them in having naked ovules—*i.e.*, ovules not inclosed in an ovary, but fertilized

by the direct application of the pollen to the *foramen*, without the intervention of style or stigma—and upon this account separated from the other exogenous orders, with *Cycadaceæ* (q.v.), by Lindley, Endlicher, and others, as a distinct class, under the name *Gymnogens* or *Gymnospermæ*. The flowers are unisexual, the male and female sometimes on the same, sometimes on separate plants; the male flowers have either one stamen or one bundle of stamens, the anthers often crested; the female flowers are in cones or solitary; the place of ovaries is supplied by the flat scales of the cones, the ovules are usually in pairs on the face of the scales, either inverted or erect. The fruit is either a cone—the scales of which sometimes become fleshy, and are incorporated into a berry-like fruit—or a solitary naked seed. The seed has a hard, crustaceous integument; the embryo is in the midst of fleshy oily albumen; the cotyledons are either two, or numerous and whorled. The mode of branching is peculiar, numerous buds proceeding from the side of the main stem, so as generally to form whorls of branches usually almost horizontal in their direction, while the central vertical shoot runs up often with admirable straightness, and some of the coniferæ attain a height unrivalled among other forest-trees, of which the *Wellingtonia* or *Washingtonia*, now usually called *Sequoia* (q.v.), of California affords the most noble example. The wood consists of *punctated* cells; the sides of the tubes or elongated cells which form it, and which are nearly of equal diameter, being marked by circular disks, which, when highly magnified, exhibit a small internal circle surrounded by a larger external one. The annexed cut represents a longitudinal section of part of the stem of a fir, highly magnified, showing the disks. This peculiarity of the wood of the coniferæ, is important, as enabling us to recognize it in a fossil state, and to refer many fossils, particularly of the coal formation, to this order. Most of the coniferæ have very narrow veinless leaves. By far the greater number belong to the n. hemisphere. The coniferæ are very long-lived; some of them are supposed capable of attaining an age of 2,000 or 3,000 years. When the stem of a coniferous-tree is cut across, it does not sprout again from the root. The coniferæ, besides the great usefulness of the timber of many, are remarkably productive of turpentines (q.v.) and resins (q.v.). Astringent substances also are found in their bark, and fixed oil in their seeds. The seeds of some species of *Pine* and *Araucaria* are used as food.

The coniferæ are divided into—1. *Abietineæ*, having inverted ovules and woody cones, as the pines, firs, larch, cedar, araucaria, etc.: 2. *Cupressineæ*, with erect ovules, and either woody or fleshy cones, as the juniper, arbor-vitæ, cypress, etc.: 3. *Taxineæ*, with solitary seeds, as the yew, gingko, etc.: 4. *Gnetaceæ*, plants of comparatively humble growth, with jointed stems, often regarded as forming a distinct order: see SEA-GRAPE. Lindley and others also make the *Taxineæ* a distinct order. see YEW.

CONI'INE, *kō-nī'ĭn*, Coneine, Conia, or Conine, a volatile alkaloid having the formula $C_8H_{17}N$, and constituting the active poisonous principle of the hemlock, *Conium maculatium*. It exists in all parts of the plant, but especially in the not quite ripe seeds. When pure it is a colorless oily liquid with a strong, mouse-like odor, oxidizing, upon exposure to air, to a brown fluid, and ultimately to a resinous mass. It boils at 336° F., and, at ordinary temperatures has a specific gravity of about 0.86. It absorbs about 25 or 30 per cent. of its own weight of water, and freely mixes with alcohol, benzene, chloroform, and ether. It also dissolves sulphur, though it does not dissolve phosphorus. Coniine is a violent poison, causing death by paralysis of the motor nerves.

CONIROSTERS, or Conirostres, n. plu. *kŏn'ĭ-rŏs'tēr̆s* [L. *conus*, a cone; *rostrum*, a beak]: tribe or section of the order of birds called *Insessores*, and characterized by a strong, conical bill, without notches: classed among the passerine birds. The feet are, in general, adapted for walking on the ground, as well as for perching. The bill varies much in its thickness, and those species in which it is thickest, in general feed most exclusively on seeds. The number of birds belonging to this tribe is very great; and the families differ much in many respects. Among them are finches, sparrows, buntings, linnets, larks, plantain-eaters, colies, crows, birds-of-paradise, starlings, and even hornbills. Con'iros'tral, a. *-rŏs'trăl*, having a thick conical beak, as a crow.

CONJECT, v. *kŏn-jĕkt'* [see Conjecture]: in *OE.—lit.*, to throw together; to guess; to conjecture. Conject'ing, imp. Conjected, pp.

CONJECTURE, n. *kŏn-jĕk'tūr* [F. *conjecture*—from L. *conjectūră*, an inference, a conclusion—from *con*, *jactus*, thrown: It. *conjectura—lit.*, a throwing together]: a guess; a supposition; an opinion formed on very slight evidence. V. to form an opinion by guess or on very slight evidence; to surmise. Conjec'turing, imp. Conjec'tured, pp. *-tūrd*. Conjec'turer, n. *-tū-rĕr*, one who. Conjec'tural, a. *-răl* [F.—L.]: depending on a guess or on slight evidence. Conjec'turally, ad. *-lĭ*. Conjec'turable, a. *-tū-ră-bl.* —Syn. of 'conjecture, n.': guess; hypothesis; divination; supposition; surmise; inference.

CONJOIN, v. *kŏn-joyn'* [F. *conjoindre*, to conjoin—from L. *con*, *jungo*, I join or fasten]: to fasten together; to unite; to connect or associate. Conjoin'ing, imp. Conjoined', pp. *-joynd'*. Conjoint', a. *-joynt'* [F.—L.]: united; connected. Conjoint'ly, ad. *-lĭ*, in union with; together; not apart.

CONJUGAL, a. *kon'ju-găl* [F. *conjugal*—from L. *conjŭgālis*, relating to marriage—from L. *con*, *jugum*, a yoke or bond: L. *conjux*, a husband or wife: It. *conjugale*]: pertaining to marriage; matrimonial; connubial. Con'jugally ad. *-lĭ*. Conjugal rights: see Marriage.

CONJUGATE, v. *kŏn′jû-gāt* [L. *conjŭgātus*, united—from *con*, *jugum*, a yoke: It. *conjugare*]: to unite; to exhibit a verb in all its principal parts; to inflect a verb: N. a word agreeing in derivation with another word: Adj. in *bot.*, a pinnate leaf composed of a single pair of leaflets. Con′jugating, imp. Con′jugated, pp. Con′juga′tion, n. *-gā′shŭn*, in *gram.*, the exhibition of the principal parts of a verb; a form of reproduction among the lowest organisms preceded by the union and fusion of two individuals; in *bot.*, the union of two cells in such a way as to develop a spore. Conjugate diameter, a diameter parallel to a tangent at the vertex of the primitive diameter. Conjugate spirals, in *bot.*, whorled leaves so arranged as to give two or more generating spirals running parallel to each other.

CONJUGA′TION, in Grammar: a connected view or statement of the changes of form that a verb (q.v.) undergoes in its various relations: see Inflection. The forms usually included under this term are those that serve to mark: 1. *Person*, or the distinction between the speaker, the spoken-to, and the spoken-about; as (I) *write*, (thou) *writest*, (he) *writes*. 2. *Number;* as (John) *writes*, (they) *write*. 3. *Tense*, or time; as (I) *write, wrote, have written, will write*. 4. *Mood*, or the manner in which the action is presented. When the action is simply asserted, it is the Indicative mood, as (he) *wrote;* when put as a supposition or condition, it is the Subjunctive mood, as, *if he wrote*. The Potential mood expresses the power of doing the action, as, *he can write;* and the Imperative commands the doing of it—*write*. The Infinitive mood expresses the action without limitation of any kind—*to write;* as it makes no affirmation, it is, strictly speaking, not a verb, but a kind of abstract noun. The two participles, the one expressing the action as in progress (*writing*), the other as completed (*written*), have been, by many writers, classed with the infinitive, as not affirming anything. In opposition to the infinitive and the participles, the other parts of the verb are called Finite. 5. *Voice*, or the distinction between Active and Passive (see Verb); as (he) *wrote* (the letter), (the letter) *was written* (by him).

In English, and in most modern European languages, the greater part of these distinctions are indicated by separate words; in Sanskrit, Greek, and Latin, they were nearly all indicated by prefixes and affixes, or other modifications of the word itself. For the nature and origin of these modifications, see Inflection. All verbs do not take the same changes even in the same language. Although the affixes, e.g., may have originally been the same, yet they underwent, in course of time, different kinds of corruption or obliteration, depending upon the nature of the letters in the root verb. This leads to the verbs of a language being arranged in different classes of conjugations. In Latin, for instance, grammarians recognize four conjugations, and verbs that cannot be brought into any class are called Irregular Verbs.

In English, there are two distinct types of the inflection of verbs; thus, *I love*, becomes in the past tense, *I loved*, and in the passive voice, *I am loved;* while *he shakes* becomes *he shook*, and *he is shaken*. Verbs, that, like *love*, take *d* (or *ed*—sometimes *t*) in their past tense and past participle, form one class or conjugation; and those resembling *shake* in their changes form another. The former class is by far the most numerous; but the latter includes the most commonly used and oldest verbs in the language. The mode of change seen in *shake, shook, shaken*, is believed more ancient than the other, and is therefore called the Old conjugation, and sometimes, the Strong conjugation, the other being the New or Weak. The verbs belonging to the old conjugation all are of Saxon origin, and are primitive or root verbs; while derivative verbs belong to the other class. Verbs of the weak conjugation are nearly uniform in taking *d* or *ed*, although after certain letters the *d* is of necessity pronounced as *t*, and is sometimes replaced by that letter in writing—*dipped* becoming *dipt*. With regard to verbs of the strong conjugation, no rule can be given as to the change of vowel by which the past tense is formed. It was made at first, no doubt, according to what were felt as laws of euphony; and even yet a certain 'method' may be discerned 'in their madness,' Thus:

1. Rise, rose; smite, smote; ride, rode; drive, drove; etc.
2. Cleave, clove; steal, stole; speak, spoke; tear, tore; etc.
3. Swim, swam or swum; sing, sang or sung; ring, rang or rung; etc.

CONJUGATION OF CELLS: union of two distinct cells of a plant, in order to reproduction. It has been observed only in the *Confervaceæ* and *Diatomaceæ*. Two cells come into contact, as by two filaments of a *Conferva* being brought together, and little projections are formed from each, the points of which are absorbed, and thus a tube is formed, through which one of the cells empties itself into the other. The latter then becomes a *mother-cell*, and produces spores.

CONJUNCT, a. *kŏn-jŭnkt'* [L. *conjunctus*, joined together, united—from *con, junctus*, joined, coupled]: conjoined; united. CONJUNCT'LY, ad. *-lĭ*. CONJUNC'TION, n. *-jŭngk'shŭn* [F. *conjonction*]: union; connection; league; in *astron.*, the meeting of two planets on the same side of the sun and in the direct line of the eye, as the moon with the sun at new moon; in *gram.*, a joining or connecting word. CONJUNC'TIVE, a. *-tĭv*, serving to unite. CONJUNC'TIVELY, ad. *-lĭ*. CONJUNC'TIVENESS, n. CON-JUNC'TURE, n. *-tūr* [F. *conjoncture*]: a joining together; a combination or union, as of causes; an occasion; a crisis. *Note.—Inferior* and *superior conjunctions*, are said of the inferior planets, Mercury and Venus—*inferior* when the planet passes between the sun and the earth, and *superior* when it passes behind the sun.

CON'JUNCT and CON'FIDENT: see INSOLVENCY.

CONJUNC'TION, in Astronomy: one of the aspects (q.v.) of the planets. Two heavenly bodies are in conjunction when they have the same longtitude—that is, when the same perpendicular to the ecliptic passes through both. If they have, at the same time, the same latitude—that is, if they are both equally far n. or s. of the ecliptic—they appear from the earth to be in the same spot of the heavens, and to cover one another. The sun and moon are in conjunction at the period of new moon. In the case of the inferior planets, Mercury and Venus, there is an inferior conjunction when the planet is between the earth and the sun, and a superior, when the sun is between the earth and the planet. In general, a heavenly body is in conjunction with the sun, when it is on the same side of the earth and in a line with him; and it is in *opposition* to the sun, when it is on the opposite side of the earth, the earth being in a line with it and the sun. Planets are invisible when in conjunction with the sun, except in rare cases when an inferior planet passes over the sun's disk, and may be seen as a speck on his surface. Conjunctions are either *geocentric* or *heliocentric*, according as they are actually witnessed from the earth, or as they would be witnessed if observed from the sun. In observing a conjunction from the earth's surface, it is usual to reduce the observation to what it would be if made from the earth's centre; by this means, the exact time of conjunction are more accurately fixed, and the observations of one astronomer made available to every other, wherever he may be on the earth's surface. *Grand conjunctions* are those in which several stars or planets are found together. The Chinese history records one in the reign of the Emperor Tehuen-hiu (B.C. 2514–2436), which astronomers calculate to have actually taken place.

CONJUNCTION, in Grammar: a word assigned to one of the 'parts of speech,' or classes, into which grammarians divide words. A conjunction serves the purpose of connecting sentences, parts of sentences, and single words; as 'Day ends, *and* night begins. William *and* John learn Latin. Charles *and* James carried the basket between them.' In the first sentence, *and* connects two separate affirmations into one compound sentence. The same is true in the second—the separate affirmations being 'William learns Latin,' and 'John learns Latin,' In the third sentence, *and* connects only the two words, 'Charles' and 'James' as it cannot be affirmed of either of them alone that he 'carried the basket.' In most cases, however, it can be shown that, logically at least, two affirmations are involved, and that the conjunction really connects the affirmations. It is not easy to distinguish conjunctions from adverbs. All conjunctions were originally other parts of speech; and the greater part of them are still really adverbs, and owe their conjunctive effect to their signification as adverbs. In *and* and *but*, whatever may have been the original meaning,

we now attend only to the conjunctive effect; *or* is a shortened form of the pronominal adjective *other;* and *nor* is *or* with the negative prefixed. In such a sentence as, 'I believe that you are wrong,' *that* is the demonstrative pronoun, equivalent to—I believe *this*, viz., 'you are wrong.' This is clearly seen in the corresponding words in other languages: Ger. *dass*, Fr. *que*, Lat. *quod* (for the relatives were originally demonstrative pronouns). All the rest might be called Adverbial Conjunctions, or Conjunctive Adverbs. Ex., 'He is industrious; *therefore* he is happy'—that is, 'he is happy *for that.*' This adverb, or adverbial phrase, expressive of the cause of the happiness, by referring back for its meaning to the former assertion, has the effect of connecting the two assertions in the mind. Again, 'The messenger arrived *while* he was speaking.' Here *while* is equivalent to, *at the time at which* (he was speaking). As an adverbial phrase, this points to the time of the act of 'arriving;' but as it also expresses that the speaking was going on at the same time, it thus conjoins the two assertions.

The most important distinction among conjunctions is illustrated in the following pair of sentences:

The sun went down, *and* the moon rose.
The moon rose, *as* the sun went down.

The first (compound) sentence contains two simple sentences or assertions, linked together, yet each standing on an independent footing; the two are joined on terms of equality, and are therefore said to be *co-ordinate*, and the conjunction is called a Co-ordinating Conjunction. In the second sentence, the last clause, though a grammatical sentence, contains no logical proposition, no assertion made for its own sake, but merely states a fact as a modifying circumstance with regard to the assertion contained in the first clause. The sentence of the second clause is therefore *subordinate* to that of the first, and the conjunction that marks the relation, a Subordinating Conjunction. The chief Co-ordinating conjunctions are:

1. *And, also, likewise, not only—but, partly—partly, first—then, further.* All these are used to tack on sentences whose sense accords with, or adds to, the effect of what goes before. Hence they might be called *cumulative* conjunctions. The following (2) mark various degrees of opposition in the sense or effect of the sentences, and might be called *adversative* conjunctions. These terms seem preferable to *conjunctive* and *disjunctive*, frequently used.

2. — (*a*). *Not—but, else, otherwise* (Exclusive.)
   — (*b*.) *Either—or, neither—nor* (Alternative.)
   — (*c*.) *But, only, yet, still, at the same time, nevertheless, notwithstanding.*

3. *Therefore, wherefore, for, thus, consequently, hence, accordingly, so, so that.* (Cause and effect.)

All other conjunctions may be classed as Subordinating, such being their usual function. Those in most common

use are: *Although, as, as well as, so—as, as—as, because, if, lest, since, than, that, in order that, though, unless, whether, when, before, after, while.*

CONJUNCTIVA, n. *kŏn'jŭnk-tī'vă* [L. *conjunctīvus*, fastening together—from *con*, together; *jungo*, I join]: the fine sensitive membrane which covers the front of the eye-ball, and lines the eyelids.

CONJURE, v. *kŏn-jôr'* [F. *conjurer*—from L. *conjurārĕ*, to combine together under an oath—from *con*, *jurārĕ*, to swear]: to call on or summon by a sacred name; to implore solemnly; in *OE.*, to bind by an oath; to conspire. CONJU'RING, imp. CONJURED', pp. *-jôrd'*. CONJURE'MENT, n. solemn demand or injunction. CON'JURA'TION, n. *-jû-rā'shŭn* [F.—L.]: the act of using certain words or ceremonies in order to gain the assistance of a superior power; the act of summoning in a sacred name: see MAGIC INCANTATION. CONJURER, n. *kŏn-jô'rėr*, one who summons in a sacred name. CONJU'ROR, n. *-jô'rŏr*, one bound by oath with others. CONJURE, v. *kŭn'jër*, to act in some manner by supernatural influence; to practice magic arts; to charm. CON'JURING, imp. CON'JURED, pp. *-jërd*. CONJURER, n. *kŭn'jërer*, one who pretends to the secret art of performing things supernatural; a juggler; a man of sagacity.

CONK'LIN, *kŏnk'lin*, EDWIN GRANT, American zoologist: b. 1863, Nov. 24. Graduated Ohio Wesleyan University (S.B. 1885, A.B. 1886, A.M. 1889), Johns Hopkins University (PH.D. 1891). Investigator Marine Biological Laboratory 1890–1901; Professor of Biology Ohio Wesleyan University 1891–1894; Professor of Zoology Northwestern University 1894–1896; Professor of Zoology University of Pennsylvania since 1896. Trustee Marine Biological Laboratory; Member American Society of Zoologists, American Society of Naturalists, Fellow of American Association for the Advancement of Science, Vice President Academy of Natural Sciences of Philadelphia, Secretary of American Philosophical Society; Past President American Morphological Society; Associate Editor of Biological Bulletin and of the Journal of Morphology. Author of 32 scientific papers published between the years 1891 and 1902 among which the following are the most important: *Fertilization of the Ovum; The Embryology of Crepidula; Syllabus of Six Lectures on Organic Evolution; Evolution and Revelation; The Phenomena and Mechanism of Inheritance; Factors of Evolution.*

CONK'LIN, JENNIE MARIA (DRINKWATER), American author: b. Portland, Maine, 1841, April 14; d. New Vernon, N. J., 1900, April 28. She was educated in the public schools, and while still in her teens won fame with her stories for children. In 1880 she married Rev. Nathaniel Conklin. Her works include: *Miss Prudence; Tessa Wadsworth's Discipline;* and *Fifteen.* She originated the 'Shut-in Society,' an organization of invalids for correspondence.

CONN, Lough: lake in the n. of Mayo county, Ireland, and with Lough Cullin (from which it is separated by a narrow neck of land), 13 m. long, and one to three broad. It is 40 ft. above the sea, in a wild romantic region of hills, glens, rocky slopes, precipices, broken ground, and bogs.

CONN, Herbert William, American biologist: b. Fitchburg, Mass., 1859, Jan. 10. He was educated at Boston University and is professor of biology at Wesleyan University, Middletown, Conn. He has published *Evolution of To-day* (1886); *The Living World* (1891); *The Story of Germ Life* (1897); *The Story of the Living Machine* (1899); *The Method of Evolution* (1900); *Agricultural Bacteriology; Bacteria in Milk and Its Products; Nociones de Microbiologia* (1902); *An Elementary Physiology and Hygiene for use in Schools* (1903); etc.

CONNARACEÆ, *kŏn-na-rā'sē-ē:* natural order of dicotyledonous or exogenous plants, consisting of trees and shrubs, sometimes climbing, with compound alternate leaves, destitute of stipules; the flowers in racemes or panicles. Resinous juices do not occur in this order. 40 or 50 species are known, all tropical. The best known product of this order is the beautiful wood called Zebra Wood, from a large tree which grows in Guiana, *Omphalobium Lamberti.* The fruit of some species of *Omphalobium* is eaten; the eatable part is the fleshy aril.

CONNASCENCE, n. *kŏn-năs'sĕns* [L. *con,* together *nascens,* being born, springing up; *nātus,* born]: a common birth or origin; act of growing together.

CONNATE, a. *kŏn-nāt'* [L. *con,* together; *nātus,* born]: born with another; in *bot.,* having two leaves on opposite sides of a branch united by their bases; having parts united in any stage of development, which are normally distinct. Connat'ural, a. *-năt'ū-răl* [L. *nătūra,* nature]: connected by nature or birth; inherent. Connat'urally, ad. *-lĭ.*

CONNAUGHT, *kŏn'nawt:* westmost and smallest of the four provinces of Ireland: bounded n. and w. by the Atlantic; e. by Ulster and Leinster, from the latter of which it is separated by the Shannon; and s. by Munster. It. contains the counties of Galway, Leitrim, Mayo, Roscommon and Sligo. Greatest length from n. to s., 105 m.; greatest breadth, not including Achil Island, 92 m. Area, 6,863 sq. m. Along the w. coast are many fine bays and harbors. The country, especially in the w., is mountainous and rugged, remarkably grand and picturesque. (For details, see the respective counties.) The people are still almost purely Celtic. In the times of the Irish pentarchy, the O'Connors were kings of Connaught. In 1590, the province was divided into six counties, the five above mentioned, with Clare (afterward joined to Munster). It then lost its independence, and came under English administration. From famine and emigration, the population of Connaught has been diminished by more than

750,000 since 1841. Pop. (1841) 1,420,705; (1851) 1,012,479; (1861) 919,135; (1871) 846,213; (1891) 723,-573; (1901) 646,932.

CONNAUGHT, Arthur William Patrick, Duke of: English prince, third son of Queen Victoria; b. Buckingham Palace 1850, May 1. Besides his position of Duke of Connaught, he is prince of the United Kingdom, Duke of Saxony, Earl of Sussex, and Prince of Coburg and Gotha. He entered the Woolwich Military Academy in 1866, became general of brigade in 1880; was created Duke of Connaught and Strathern, and Earl of Sussex 1874, May 26, and received a seat in the House of Lords June 8 of that year. He married Princess Louise Margaret of Prussia, 1879, March 13. In January 1900 he succeeded Lord Roberts as commander-in-chief in Ireland, becoming commander of the Third Army corps in 1901.

CONNECT, v. *kŏn-nĕkt'* [L. *connectĕrĕ*, to bind or fasten together—from *con*, *necto*, I tie, I bind]: to tie or link together; to knit or fasten together; to join or unite; to combine or associate; to have a close relation. Connec'ting, imp.: Adj. fastening together; joining. Connec'ted, pp. Connec'tedly, ad. *-lĭ*. Connec'tive, a. *-tĭv*, able to connect: N. that which joins; in *bot.*, the fleshy part which connects the lobes of an anther. Connection, n. *kŏn-nĕk'-shŭn*, or Connex'ion, n. *-nĕk'shŭn* [F. *connexion*—from L. *connĕxĭōnem*, a conclusion—from L. *con*, *nexus*, tied]: state of being joined or fastened together; the act of joining or fastening together; union by an intervening substance; relation by blood or marriage; a religious sect: N. plu. acquaintances; business friends; relatives. Connecting-rod: see Steam-engine. *Note.*—By most writers the spelling Connection [L. *con*, *necto*, I tie] and Connexion [L. *con*, *nexus*, tied] are used indifferently. As derived from the English verb *connect* and the Latin *necto*, the spelling *connection* should be preferred to that of *connexion*. If, however, both forms are preserved, their application should be restricted, and they ought not to be made identical in signification. As suggested by Dr. Latham, the form (1) Connection should be used when a *link or bond of union* is meant; and (2) Connexion when *the object which is linked* is signified, —thus (1) Connection, n. *kŏn-nĕk'shŭn*, state of being fastened together; act of fastening together; junction by an intervening substance or medium; just relation to something precedent or subsequent; coherence. (2) Connexion, n. *kŏn-nĕk'shŭn*, a relation by marriage or blood; a religious sect or communion; circle of persons with whom any one is in contact.—Syn. of 'connect': to combine; attach; unite; knit; link; fashion; weave; twine;—of 'connection': union; junction; association; intercourse; communication; communion; dealing; coherence; continuity; dependence; commerce; relationship; affinity; alliance; correspondence.

CONNECTICUT.

CONNECTICUT, *kon-nĕt'ĭ-kŭt:* state, one of the 13 original states of the American Union and excepting Delaware and Rhode Island the smallest in area of all the states.

Location and Area.—C. lies between lat. 41° and 42° 3′ n., and long. 71° 55′ and 73° 50′ w., and is bounded on the n. by Massachusetts 88 m., e. by Rhode Island 45 m., s. by Long Island sound 100 m., and w. by New York 68 m.; it has a projection under New York on the s. w. of 13 m.; average length 86 m., and breadth 55 m.; 4,845 sq. m.

Surface.—It is on the s. slope of the hilly region of New England, and while its surface is beautifully diversified with hills and valleys it is in no place over 1,000 ft. above sea-level. It is drained by three large rivers and their tributaries. Of these the Connecticut is the largest in New England; rises in N. H., near the boundary of Canada, separates N. H. from Vt., crosses Mass. on the w., bisects C., and after a flow of over 400 m. empties into Long Island sound at Saybrook. It has a width in C. varying from 500 to 1,000 ft., and is navigable 50 m. from its mouth. The Housatonic with its main branch, Naugatuck, waters the grazing and dairying sections of the w. plateau, and is navigable to Derby. The Thames, formed by the Yantic, Shetucket, and Quinnebaug, drains the e., and is navigable to Norwich. There are four distinct ranges of hills, running generally n. and s.; the Housatonic extending along that river to the coast, the Green Mountain from the Vt. line to New Haven, the Blue between the Green Mountain and the C. river, and a fourth further e., which is crossed by the C. river at Chatham. The valley of the C. exhibits triassic sandstone and post-tertiary terraces; the remainder of C. is considered eozoic.

Natural Resources.—Of the various mineral productions iron ore takes the lead, and is found in great quantities in Salisbury, Kent, Sharon, Canaan, and Cornwall; the works at the former place have been in operation over a century. Copper is found in Granby, Bristol, and other towns, but has not been worked to any extent in many years. Cobalt is found at Chatham, and lead and silver in several places, but the last two not in paying quantity. The rocks are mainly traps, granite, sandstone, and limestone. There are immense quarries of red sandstone at Portland and Cromwell, which furnish brownstone fronts for buildings. Bolton and Haddam supply an excellent quality of slate flagging, Milford a beautiful greenish marble and limestone, and Canaan and Washington limestone and marble. Glastonbury and Middletown have valuable felspar quarries yielding an abundant material for porcelain and crockery; Lyme has a variety of porphyry; and granite, gneiss, clay for bricks and pottery, tiling slate, and sulphate of barytes, are found in profusion throughout the state.

CONNECTICUT.

Agriculture.—There are about 30,000 farms in the state, comprising approximately 3,000,000 acres, about three-fifths of which are improved lands. The total value of all farm property, including lands, improvements and buildings, implements and machinery and live stock, is, in round numbers, $200,000,000. The principal crops are corn, oats, rye, buckwheat, potatoes, hay, and tobacco. Although agriculture has been declining of recent years in Connecticut, it still holds a foremost place among the industries of the state. Owing to the improved methods of curing the harvested plant, tobacco is one of the principal agricultural products, while the yield of the peach orchards is assuming more and more importance.

Manufactures.—There are about 4,000 manufacturing establishments, the chief industries being textiles, of which the principal articles are cotton goods, silk and silk goods, and woolen goods; brass manufactures; hardware; foundry and machine shop products; ammunition; boots and shoes; rubber; rubber and elastic goods, and felt hats. Other leading industries are clocks, corsets, buttons, cutlery and edge tools, electrical machinery, automobiles, firearms, iron and steel products, musical instruments, pins, needles, sewing machines, etc. Shipbuilding also forms an important industry, there being nearly 50 establishments for iron, steel, and wood construction, with an annual output of about $5,000,000.

Finances, Banking and Insurance.—Including national state and savings banks, trust and investment companies, and building and loan associations, there are nearly 250 banks in the state. The state bonded debt in 1910 was $1,874,000 and the total assessed valuation $922,071,592, exclusive of railroad, telephone and telegraph property. There are about 38 insurance organizations, including fraternal societies, stock and mutual fire-insurance companies, and life-insurance companies.

Railroads and Transportation.—The chief railroads of the state are the New York, New Haven and Hartford, the New London Northern, and the Central New England. Altogether there is a total track mileage of almost 1,200 miles. There are nearly 30 lines of street railways, which operate in all nearly 1,000 miles of track. The principal cities and towns on the sound are connected with steamboat lines with New York and Philadelphia, while a large coasting trade is done in sailing vessels. Valuable menhaden and oyster fisheries are similarly conducted.

Charities and Corrections.—The penal institutions include a state's prison and reform school for boys and an industrial school for girls, and about 10 county jails. The charitable institutions supported by public funds include about 15 hospitals, 10 county homes for children, a home for disabled soldiers, and one for soldiers' orphans, a retreat and hospital for the insane, 2 institutions for the instruction of the deaf, an institute and industrial home for the blind, a school for imbeciles, an

Area in Square Miles, 4,990.
Number of Counties, 8.
Population, 908,420.
Capital of State, Hartford.
CONNECTICUT
SCALE OF MILES
0 5 10 15 20 25
73° Longitude West 72°45′ from Greenwich 72°30′
72°15′
72°
71°45′
BORMAY, N.Y.
LONG ISLAND SOUND
LONG ISLAND
RHODE ISLAND
The Race
Orient Pt.
Fishers I.
SHELTER I.
Peconic
Greenport
Orient
Hartford
New Britain
Meriden
Waterbury
New Haven
Bridgeport
Stamford
Norwalk
Danbury
Manchester
Norwich
New London
Middletown
Willimantic R.
Connecticut R.
Thames R.
Housatonic R.
Naugatuck R.
Farmington R.
Quinnipiack R.
Pawling R.
Saugatuck R.
Port Chester
Glenville
Greenwich
Cos Cob
Riverside
Old Greenwich
Sound Beach
Stamford
Darien
Noroton
Rowayton
South Norwalk
Norwalk
Saugatuck
Westport
Greens Farms
Southport
Fairfield
Black Rock
Bridgeport
Stratford
Long Beach
Milford
Woodmont
Pond Pt.
Savin Rock
West Haven
New Haven Harbor
Morgan Pt.
Indian Neck
Branford Harbor
Stony Creek
Pleete Island
Guilford Harbor
East River
Madison
Hammonasset Pt.
Grove Beach
Westbrook
Cornfield Pt.
Fenwick Pt.
Saybrook Pt.
Blackhall
S. Lyme
Crescent R.
Niantic R.
Millstone Pt.
Waterford
Eastern Pt.
Fishers I. Sd.
Fishers Sound
Mystic R.
Watch Hill
Watch Hill Pt.
Stonington
Westerly
Stillmanville
Mystic
Old Mystic
Center Groton
Groton
Poquonock Bridge
Thames R.
Pachaug Pond
Glasgo
Preston
Pendleton Hill
Norwich
Fort Point
Ledyard
Clarks Falls
N. Stonington
Laurel Glen
Poquetanuck
Massapeague
Mohegan
Gardner L.
Moodus
Haddam Neck
Haddam
Middle Haddam
Comstocks Bridge
Westchester
Fitchville
Bozrahville
Colchester
Portland
Cobalt
E. Hampton
Lyman Via
Gildersleeve
Marlboro
Marlboro Mills
Hopewell
Glastonbury
E. Glastonbury
S. Glastonbury
Gilead
Leonard Bridge
Chestnut Hill
Owebetuck Hill
Lebanon
North Franklin
Franklin
Baltic
Versailles
Taftville
Yantic
Norwichtown
Fair Ground
Jewett City
Griswold
Voluntown
Lisbon
Hanover
Canterbury
S. Windham
Windham
Willimantic
Central Vill.
Westminster
Columbia
Andover
Hop River
Buckingham
Glastonbury
Naubuc
Hockanum
Addison
Burnside Sta.
E. Hartford
S. Manchester
Bolton
Eagleville
S. Coverty
Coventry
Talcottville
Vernon
Merrow
Rockville
Tolland
Mansfield
Mansfield Depot
Gurley
Chaplin
Mansfield Cen.
Eastford
Westford
Woodstock Valley
Stafford Spgs.
Stafford
Union
Staffordville
State Line
Ellithorpe
Kibbe
Shaker
Somers
Soitico
West Stafford
Enfield
Warehouse Pt.
Melrose
Broadbrook
Ellington
E. Windsor
Windsor Hill
Windermere
S. Windsor
Wapping
Buckland
Windsor
Bloomfield
Poquonock
Rainbow
Suffield
Granby
Locks
Thompsonville
Hazardville
Elmerville
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Wilsonville
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Brooklyn
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Clarks Corner
Pomfret
Ashford
Warrenville
Abington
S. Willington
E. Willington
W. Willington
Willington
Hartford
Parkdale
Burlington
Unionville
Farmington
Fluteville
Campville
Litchfield
E. Litchfield
Harwinton
Torrington
W. Torrington
Burrville
Winchester Cen.
W. Cornwall
Cornwall
Cornwall Hollow
Cornwall Bridge
E. Cornwall
W. Cornwall
Goshen
Torringford
Daytonville
Sharon
Sharon Val.
Ellsworth
N. Kent
Milton
Kent
Kent Fur
E. Kent
Warren
Leonards Sid.
Bantam
Northfield
E. Morris
S. Kent
Romford
Marbledale
Gaylordsville
Washington Depot
Washington
Bethlehem
Bridgewater
Roxbury
Woodbury
Middlebury
Watertown
Minortown
Judd Bridge
Hotchkissville
Northville
Boardman Bridge
Sherman
Jerusalem
New Milford
Lanesville
Orton
Southbury
Osbornetown
Union Cy.
Prospect
East Farms
Cheshire
Waterville
Plantsville
Rockdale
Oakville
Watertown
Wheaton
Greystone
Wolcott
Kensington
Berlin
Cooks
Plainville
Forestville
Bristol
Terryville
Pequabuck
Plymouth
Reynolds Bridge
Thomaston
Morris
Northfield
Bantam
Milton
Litchfield
Harwinton
Burlington
Unionville
Farmington
Fluteville
Campville
Cottage Grove
Avon
Canton
Collinsville
Bakersville
Nepaug
Meadow
Pine
Simsbury
W. Simsbury
Weatogue
New Hartford
Pleasant Valley
Barkhamsted
Winsted
Colebrook Sta.
Robertsville
Colebrook
Hartland
N. Granby
Riverton
Hampsted
W. Granby
E. Granby
Granby
Suffield
Windsor Locks
Poquonock
Rainbow
Tariffville
N. Bloomfield
Windsor
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Wethersfield
S. Wethersfield
Clayton
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Rocky Hill
Beckley
N. Cromwell
Cromwell
E. Berlin
Westfield
Middletown
Rock Fall
Middlefield
Meriden
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Reeds Gap
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Durham Center
Goodspeed
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Old Saybrook
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Dover Plains
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Silvermails
Boston Corners
Chapinville
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Canaan
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E. Hartland
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Central Vill.
N. Windham
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S. Canterbury
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Hadlyme
Tylerville
Essex
Killingworth
Ivoryton
Saybrook Jc.
Saybrook
Old Saybrook
Pine Orchard
Sachem Head
Guilford
Clinton
Winthrop
Branford
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Fair Haven
Indian Head
Montowese
N. Haven
N. Branford
N. Guilford
E. Wallingford
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Rockland
Clintonville
Northford
Augerville
Quinnipiack
Ansonia
Derby
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New Haven
W. Haven
Orange
Tyler City
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Baldwin
Orono-que
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Sandy
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Pomperaug Val.
Southford
Wards
Shepaug
S. Britain
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Brookfield Ctr.
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Norwalk
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Georgetown
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Westport
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Springdale
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Dover Plains
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Clarks Corner
Pomfret
Ashford
Warrenville
Abington
S. Willington
E. Willington
W. Willington
Willington

almshouse for state paupers, and about 90 almshouses for town paupers.

Religion.—The Congregational Church is the strongest, followed by the Methodist Episcopal, Protestant Episcopal, Baptist, Roman Catholic, Presbyterian, Universalist, Unitarian, Lutheran, and Jewish Churches.

Education.—There are nearly 200,000 children in the public schools and over 5,000 teachers. There are 4 public normal schools, 3 co-educational colleges and universities, besides colleges and universities for men only, and schools of technology, law, medicine, and 3 theological schools. The higher institutions of learning are all supported by endowments or church funds, the principal ones being Yale University, Wesleyan University, Trinity College, the Hartford Theological Seminary, the Berkeley Divinity School, St. Thomas Catholic Seminary, and St. Joseph Catholic Seminary. Each of these has a large library of its own, besides which there are about 135 general libraries, of which approximately three-fifths are free. The permanent school fund of the state was established in 1795 with the proceeds of the sale of the Western Reserve lands in Ohio. There is another fund of about $750,000, which the state had appropriated to the towns, known as the town deposit fund. Education in C. is compulsory.

Religion.—The Congregational church ranks first and then follow Meth. Epis., Prot. Epis., Bapt., Rom. Cath., Presb., Univ., Unit., Luth., and Jewish churches.

Government.—Connecticut has been governed under two charters, the first of which was adopted in 1638–9, Jan., and fortified and protected by the charter of 1662. The second constitution of C. was adopted 1818. This constitution, with its subsequent amendments, forms the organic law of C. at present. For many years Hartford and New Haven were joint capitals and the legislature held alternate sessions in each city, but the former was selected as the sole seat of govt. 1874. The legislature consists of a senate of 24 members and a house of representatives of 255 members. One senator is elected from each of the 24 senatorial districts; two representatives each from 87 towns; and one representative each from 81 towns. The courts are the supreme court of errors, the superior court, the court of common pleas, and the district court, the judges of which are appointed by the general assembly on nomination by the governor. Judges of city, borough, and town courts are appointed by the general assembly. There are in the state 112 probate districts, the judges of which are elected by the people. The gov. and other state officers are elected biennially. C. has two senators and four representatives in the U. S. congress. The govt. embraces the following: Gov., lieut.-gov., sec. of state, treas., comp., sec. of state board of education, railroad commissioners, chief justice supreme court.

History.—It is uncertain whether C. was visited first by the English or by the Dutch. Both claimed to be the first explorers and their rival claims to possession afterward gave great annoyance to the settlers. The Dutch claimed the territory by reason of the discoveries of Hendrick Hudson, though they made considerable purchases from the Indians; and the English claimed it by virtue of a patent granted by Robert, Earl of Warwick, to Lord Say and Seal, Lord Brook, Sir Richard Saltonstall, and others associated under the name of the 'Plymouth Company' 1631. The 'Plymouth Council for the planting, ruling, and governing of New England, in America,' was incorporated by King James I. 1620, and from it was derived the above patent and the numerous grants under which the early settlements were made. The Dutch further claimed that they had explored the C. river and sea-coast as early as 1615, and it is known that they established a colony at Hartford 1633, but soon afterward sold it to the English. On the other hand it is known that a sachem living on the river visited Plymouth and Boston 1631, and solicited the governors of those settlements to send a colony to occupy the country. A small party went from Plymouth to the C. river and selected a convenient spot for a trading station in the present Windsor, near the mouth of the Farmington river; and Gov. Winslow and Mr. Bradford of the Plymouth colony proposed to Gov. Winthrop of Mass. and his council that they should join them in establishing such a house there to secure the country against the designs of the Dutch, who were reported to be about carrying a similar project into execution. In 1633, the C. river was visited by several vessels from Plymouth, and on reaching the site of Hartford it was found that the Dutch had erected a small fort there. The party sailed past it, and on reaching Windsor built the trading house and surrounded it with a palisade, the ground having been purchased by the Plymouth people from the Indians. The first systematic plan formed for the settlement of C. was proposed to the general court of Mass. 1634. Strenuous opposition was made to the removal of so many families as were interested in the project, and while awaiting the decision of the court five impatient men started from Watertown and proceeded to a place about four m. below the present Hartford, where they erected huts, 1635, and spent the winter. The court consented to the removal of the petitioners, 1636, May, on condition that they would remain under the jurisdiction of Mass. The party was composed mainly of married men with their families, and included several religious congregations with their ministers, Messrs. Warham, Thomas Hooker, and Samuel Stone—the last two of whom had been ordained 1633, Oct. 11—church officers, and members. The five prospectors settled Hartford 1635, and the colonists took possession in the following year. The first court assembled there 1636, Apr. 26, and Messrs. Hooker

and Stone had pastoral charge of the first church 1636–47. The settlers of Windsor were from Dorchester, those of Hartford from Newtown (now Cambridge), Mass. Wethersfield was settled 1636 by people from Watertown, Mass.; the settlement of Springfield, Mass., was begun the same year, and buildings and fortifications were erected at Saybrook.

The second large settlement was made at New Haven, 1638, by a company which had left England in a body to form a settlement by themselves in the new world. They were under the spiritual leadership of the Rev. Mr. Davenport, and included a number of wealthy men. They spent their first Sabbath there Apr. 18, and at the close of a subsequent day of fasting and prayer formed the 'Plantation Covenant,' in which they bound themselves 'That, as in matters that concern the gathering and ordering of a church, so also in all public offices which concern civil order, as choice of magistrates and officers, making and repealing laws, dividing allotments of inheritance, and all things of like nature, they would, all of them, be ordered by the rules which the Scriptures held forth to them.' The three settlements bore the names of the places whence the settlers came, but not long afterward were changed by the court to their present names.

The first constitution of C. was formed at Hartford at an assembly of the free planters of the towns, 1639, Jan. 14. The preamble stated that they formed one public state or commonwealth for the establishment of order and government, and that they confederated for themselves and their successors to maintain the liberty and purity of the gospel and the discipline of the churches according to its institutions. This document is noted for being the first example in history of a written constitution organizing a govt. and defining its powers; it formed the basis of the charter of 1662, and that was considered so amply wise and sufficient in all its provisions that it was allowed to continue unaltered as the constitution of the state till 1818, when the present one was adopted. The early constitution provided for two general courts or assemblies annually, declared all to be freemen who had been received as members of the towns and taken the oath to the commonwealth, and required that the gov. should be a member of a regular church. The first assembly under the constitution met at Hartford, 1639, May, and thence till 1701 the sessions were held in that town; after that date one session was held in Hartford and the second in New Haven till 1874, when the former city became the sole capital. John Haynes was elected the first gov., with Mr. Ludlow deputy-gov., and Mr. Wells, treasurer.

The first law passed was the 'Bill of Rights' which ordained that 'unless by virtue of an express law of the colony sufficiently published, or in defect of such law, by some plain rule of God's word, in which the whole court shall concur, no man shall lose life or good name, be arrested, restrained, banished, dismembered, or in any way punished, deprived of wife, children, or property, under

color of authority.' It was also ordained that all persons in the colony, whether inhabitants or not, should enjoy the same law and justice without partiality or delay. The colony at New Haven formed a constitution shortly afterward, but it was not adopted till the following year.

Further settlements were made 1639, at the present Milford and Guilford, and the govt. of each was formed on the plan of New Haven. The towns formed large religious congregations and were first organized on the plan of a church. Rev. Mr. Davenport having taught that the church should rest on seven pillars, seven men known as the pillars of the church were chosen in each settlement to administer its affairs. They formed courts and were guided by the Scriptures till the written codes—which were held to be more formal expression of Scripture teachings—were drawn up and adopted. Milford, Guilford, and Fairfield were purchased from the Indians; the latter was settled by Mr. Ludlow. In 1640, the Indian chief Uncas sold the commonwealth, all his lands except what his people had planted; Westfield was purchased and occupied; Gov. Haynes bought Farmington for Hartford; New Haven purchased Greenwich, Stamford and Southold on Long Island, and a part of Norwalk was secured, the remainder being obtained, 1651.

In 1641, ten capital laws were adopted by the commonwealth, founded on the Scriptures The crimes which were to be punished with death were (1) the worship of any but the true God; (2) blasphemy; (3) to be a witch, defined as one that 'hath or consulteth with a familiar spirit;' (4) murder with malice; (5) slaying through guile, as 'by poison or such other devilish practices;' (6) man stealing; (7) false witness to take away life; (8) conspiracy, rebellion, and invasion; (9) arson, cursing or smiting a parent; (10) notorious stubbornness in children after a specified age.

A confederation of all the New England colonies excepting R. I., which had been in contemplation seven years, was effected 1643, May 19, at Boston, under the name of 'The United Colonies of New England.' The gov. and deputy-gov. of C. were first paid for their services 1648, when their annual salary was fixed at £30, and a troop of horse was raised 1658, which was the first ever formed within the territory of C.

The general court of C. made application to the king of England 1660, May, for a patent, which was readily granted, and 1662, Apr. 20, the royal seal was set to the charter. The title given to the corporation was 'The Governor and Company of the English Colony of Connecticut in New England in America.' and it included all lands embraced in the original patent, and, among the rest, that of New Haven colony. The latter then legally ceased to be a separate colony, and was absorbed by the new corporation, after a period of negotiation lasting till 1665, May 11.

A census of C. was taken 1680, which showed 26 small towns, with 21 churches, 24 small vessels, 2,507 militiamen, 30 slaves, and an export business valued at £9,000 per annum; but no aggregate population, the last statistics

being for 1679, when the number of men was reported as 2,507.

From the earliest settlement the people of C. had experienced great trouble from the various Indian tribes; and now, with a charter virtually of their own arrangement they looked forward to an era of peace and progress. But events were ripening in England which threatened more serious consequences. James II. came to the throne 1685. The assembly addressed him a letter of congratulation, and prayed a continuance of their civil and religious privileges, to which he responded by issuing a *quo warranto* summoning the gov. and company of C. to show by what warrant they exercised certain privileges, and appointing Sir Edmund Andross gov. of New England. Andross arrived at Boston 1686, Dec. 19, and promptly demanded the surrender to him of C.'s charter, but the assembly seemed resolved to insist upon the rights of the colony. In 1687, Oct., while that body was in session in Hartford, Andross personally demanded the surrender of the charter and dissolved the assembly. In a moment the lights were extinguished, and the precious charter which lay upon a table was snatched away and concealed by Cap. Wadsworth in the hollow of an oak tree, where it reposed till after all danger had ceased. The last entry in the journal of the assembly typified the melancholy feelings of the colonists: 'At a general court at Hartford, October 31st, 1687, his excellency, Sir Edmund Andross, knight, and captain-general and governor of his majesty's territories and dominions in New England, by order from his majesty, James the Second, King of England, Scotland, France, and Ireland, the 31st of October, 1687, took into his hands the government of the colony of Connecticut, it being by his majesty annexed to Massachusetts, and other colonies under his excellency's government. FINIS.' On the dethronement of the king, 1689, the colonial govt. resumed all its functions as if nothing had happened. The charter is still preserved in Hartford, but the old oak was blown down 1856, Aug. This particularity is given the early history of C. because of the great influence of her men and measures upon the other colonies at the time, and subsequently upon the country at large. Her governmental organization of the state and of towns became in its leading principles the model in the later organization of many of the states.

During the French, Indian, Revolutionary, 1812, and civil wars, C. did more than her share of patriotic work. She instructed her delegates in the congress to propose a declaration of freedom of Great Britain 1776, June 14, and ratified the U. S. constitution 1788, Jan. 9, being the fifth colony to do so. She also gave the country the original Brother Jonathan, in the person of Gov. Jonathan Trumbull, so efficient in co-operating with Washington and so beloved by him.

Under her state organization her governors have been: Samuel Huntington, 1785–96; Oliver Wolcott, 1796–98, Jonathan Trumbull, 1798–1809; John Treadwell, 1809–11, Roger Griswold, 1811–13; John Cotton Smith, 1813–18;

Oliver Wolcott, 1818–27; Gideon Jomlinson, 1827–31; John S. Peters, 1831-33; Henry W. Edwards, 1833–4; Samuel A. Foote, 1834–5; Henry W. Edwards, 1835–38; William W. Ellsworth, 1838–42; Chauncey F. Cleveland, 1842–44; Roger S. Baldwin, 1844–46; Isaac Toucey, 1846–7; Clark Bissell, 1847–49; Joseph Trumbull, 1849–50; Thomas H. Seymour, 1850–53; C. H. Pond (acting), 1853–4; Henry Dutton, 1854–5; William T. Minor, 1855–57; Alexander H. Holley, 1857–8; William A. Buckingham, 1858–66; Joseph R. Hawley, 1866–7; James E. English, 1867–69; Marshall Jewell, 1869–70; James E. English, 1870–1; Marshall Jewell, 1871–73; Charles R. Ingersoll, 1873–77; Richard D. Hubbard, 1877–79; Charles B. Andrews, 1879–81; Hobart B. Bigelow, 1881–83; Thomas M. Waller, 1883–85; Henry B. Harrison, 1885–87; Phineas C. Lounsbury, 1887–89; Morgan G. Bulkeley, 1889–93; Luzon B. Morris, 1893–95; O. Vincent Coffin, 1895–97; Lorrin A. Cooke, 1897–99; George E. Lounsbury, 1899–1900; George P. McLean, 1901–03; A. Chamberlain, 1903–1905; Henry Roberts, 1905-7; Rollin S. Woodruff, 1907; George L. Lilley, 1908; Frank B. Weeks, 1909; Simeon E. Baldwin, 1910. Pop. (1900) 908,355; (1910) 1,114,756.

CONNECTICUT RIVER: largest river e. of the Hudson in the United States. It rises on the s. border of Lower Canada, near lat. 45° n., and, after a fall of 1,600 ft. and s.s.w. course of at least 400 m., enters Long Island Sound in lat. 41° 16′ n. It is the chief artery of all New England except Me. and R. I.; separating New Hampshire on the e. from Vermont on the w., and afterward crossing successively Massachusetts and Connecticut. It is navigable up to Hartford for a draught of 8 ft.; and to Middletown for a draught of 10 ft.

CON'NELLEY, WILLIAM ELSEY, American author: b. Johnson county, Ky., 1855, March 15. Though almost entirely self-educated, he was for a number of years a school teacher in Kentucky and Kansas 1872–82. For four years (1888–92) he was in the wholesale lumber business, and then engaged in banking. His leisure has been chiefly devoted to the study of the history and antiquities of the North American Indians, and the states of the middle west. He compiled the first vocabulary of the Wyandot language, and has made valuable studies of the languages of the Delawares, Shawnees, and other tribes. His papers have mostly appeared in the publications of the Ontario, Kansas, Nebraska, and Ohio Historical societies, the Bureau of Ethnology, and Smithsonian Institution. Some of their titles are: *The Provisional Government of Nebraska Territory* (1899); *Notes of the Clan System of the Wyandots* (1899); *Notes on the Folk-Lore of the Wyandots* (Journal of American Folk-Lore, 1900); *James Henry Lane, the Grim Chieftain of Kansas* (1899); *Kansas' Territorial Governors* (1900);

John Brown: the Last of the Puritans (1900); *The Overland Stage to California* (with Root, 1902), etc.

CONNELLSVILLE, *kŏn'elz-vĭl*, Pa.: a borough in Fayette co., on the Youghiogheny river, and the Baltimore & Ohio and the Pennsylvania railroads, 57 m. e. of Pittsburg. It is well supplied with public and private schools, and has an unusually large number of churches representing the various denominations; also a municipal and a Carnegie library. Its most important industries are machine shops, pump factory, brick works and coal mining, and it is the center of the most extensive coke-burning region in the United States, the ovens here producing half the total output of coke in the entire country. It also has a very extensive lock factory, and is the seat of the Cottage State Hospital. Pop. (1910) 12,845.

CONNELLY, Celia Logan, American journalist: b. Philadelphia 1837; d. New York City 1904, June 19. She was married to an American artist, M. K. Kellogg, in 1859. Her literary career began in London, but she returned to the United States after the death of her husband, and 1872 married James H. Connelly (q.v.). Her novels include: *Her Strange Fate* (1891); *Sarz* (1891); etc. She also wrote plays, notably *An American Marriage;* and *Gaston Cadol.*

CONNELLY, James H., American journalist: b. Pittsburg, Pa., 1840: d. 1903. He began newspaper work when 17 years old, writing for leading Chicago, New York, and San Francisco journals, and was a volunteer officer in the Civil War. His writings include short stories and special articles for newspapers and magazines, *My Casual Death* and other novels. After 1889 he was prominent in the Theosophist movement.

CONNER, *kŏn'nėr*, David, U.S.A.: 1792–1856, Mar. 20; b. Harrisburg, Penn. He entered the U. S. navy as midshipman, 1809, Jan. 16; was commissioned lieut. 1813, July 24; commander 1825, Mar. 3; and capt. 1835, Mar. 3. During his naval career he removed the prisoners of H. M. S. *Peacock* to the U. S. S. *Hornet* after the engagement 1813, Feb.; was wounded and received a medal from congress; and a sword from the state of Penn. for gallantry in the action with the *Penguin* 1815, Mar. 23; established the blockade of Mexican ports on the gulf, and commanded the squadron on the coast two years; captured Tampico 1846, Nov. 11; superintended the landing of the U. S. forces at Vera Cruz; and was in command of the navy yard, Philadelphia, when he died.

CONNERSVILLE, *kŏn'nėrz-vĭl*, Indiana: county seat of Fayette co., on the Whitewater river, and the Cincinnati, C., C. & St. Louis, and the Cincinnati, H. & D. R. railroads. There are several natural gas wells in and near the place, and the streets are lighted by electricity. The manufactories include furniture, carriages, woolens, and blowers. Pop. (1910) 7,738.

CONNERY, Thomas Bernard Joseph, American journalist: b. Ireland, 1838, Oct. 13. The greater part of his career was spent in the service of the New York *Herald*, on which he held nearly every position except that of financial editor, 1856–84. He was editor of New York *Truth*, 1885; *Once a Week*, 1893–5; *Collier's Weekly*, 1895. He was United States secretary of legation and *charge d'affaires* in Mexico, 1866–8. He has published: *Don Tiburcio; Black Friday; History of American Comic Journalism; Character Marks Autorial; Essays on Literary Women of England;* etc.

CONNING TOWER: in modern battleships a tower built over the forward turret, the place where the commander stands during a naval engagement, and from which he directs the movements of the ship and men by electricity. It is a circular chamber scarcely 6 ft. across and protected by walls of steel 12 inches thick. The roof is also of solid steel. Between the arched roof and the walls is a narrow slit from which the eye can sweep the whole horizon. The sharp pointed bow of the boat is just below, and directly in front are the two big guns that protrude from the turret. Throughout the engagement the commander is invisible to his men, his voice alone being heard through the speaking tubes and telephone with which the turret is fitted. In its centre are the steam-steering wheel, binnacle, and compass, and by the directing hand of the commander, standing beside the compass, the battle is fought. He touches one button and the great engines drive the boat through the water; another signals the discharge of the heavy guns; the touch of the third loosens the torpedoes, while a word through a tube sends a storm of steel and lead flying from the machine guns on the upper decks and in the round top.

CONNIVE, v. *kŏnnīv′* [F. *conniver*—from L. *connivērĕ*, to wink or shut the eyes]: *lit.*, to close the eyes upon the faults or wrong-doings of another; to pretend ignorance of the faults of another; to overlook a wrong act; to aid or abet. Conni′ving, imp. Connived′, pp. *-nīvd′*. Conni′ver, n. one who. Conni′vance, n. *-nī′vănsˌ* [F.—L.]: pretended ignorance of, or blindness to, the faults of others.

CONNOISSEUR, n. *kŏn′nĭs-sĕr′* [*OF. connoisseur;* F. *connaisseur*, a critical judge—from OF. *conoistre;* F. *connaître*, to know]: a good judge in the fine arts; a discriminating or skilful critic, especially applied to painting and sculpture, etc.; called by the Italians, *cognoscenti.*

CONNOR, Ralph: See Gordon, Charles William.

CONNOR, Selden, American soldier: b. Fairfield, Maine, 1839, Jan. 25. He graduated at Tufts College, 1859; enlisted as a private in the 1st Vermont regiment 1861; became lieutenant-colonel of the 7th Maine regiment 1861, colonel of the 19th Maine 1864, and brigadier-general of volunteers 1864, June. He was present at the

battles of Fredericksburg, Gettysburg, and the Wilderness, where he was severely wounded. After the War he held several minor Federal offices, was governor of Maine 1876–8, United States pension agent 1882–6, and 1897. On 3 October 1889 he delivered the oration at the dedication of the Maine monuments at Gettysburg.

CONNOTATION, n. *kĕn-ō-tā′shŭn* [F. *connotation*, Sp. *connotacion*,— from ML. *connotatio* (n-), L. verb connotare, pp. *connotatus*, connote]: 1. the marks, attributes, or 'notes' of a term; the meaning or *intens′ion* of a term in distinction from its *denotation* or *extension*. In formal logic it is said that the connotation and denotation vary inversely; the fewer attributes a term has the wider its application; strike out 'white' from the term 'white man' and the term loses in attributes but gains in extent; the widest term, 'being' is the poorest in meaning. If, however, we take into account the variation in fundamental characteristics of man shown in different races, the term man connotes more than the term 'white man.' In this *real*, as distinguished from the *formal*, sense, increased denotation does not mean decreased connotation. 2. In older usage, implication, the signifying something in the meaning of a word besides its primary meaning.

CONNOTE, v. *kŏn-nōt′* [L. *con*, together; *noto*, I mark *nōtātus*, marked]: to imply; to include; to betoken. CONNO′TING, imp. CONNO′TED, pp. CONNOTATION, n. *kŏn′-nō-tā′shŭn* [L. *con*, *notātĭōnem*, making marks upon]: the act of designating with something: implication; inference. CONNO′TATIVE, a. *-nō′tă-tĭv*, attributive.

CONNUBIAL, a. *kŏn-nū′bĭ-ăl* [L. *connūbĭālis*, pertaining to wedlock—from *con*, *nūbo*, I marry]: pertaining to marriage; nuptial.

CONOCEPHALIDÆ, *kō-no-sĕ-făl′ĭ-dē* [*kōnos*, a cone; *kephalē*, head; L. fem. pl. adj. suf. *idæ*]: a family of trilobites. The glabella is narrow in front, the tail moderately developed, the thoracic rings fewer than in the *Paradoxidæ*, to which they are closely akin. CONOCEPHALITES, n. *kō-no-sĕ-făl-ī′tēz*, typical genus of the *Conocephalidæ*.

CONOID and CONOIDAL: see under CONE.

CONON, *kō′non:* Athenian general. He commanded a fleet B.C. 413; was chosen one of the 10 generals who superseded Alcibiades 406; was defeated by Lysander at Ægospotami and fled to his friend King Evagoras of Cyprus, B.C. 405; obtained joint command with Pharnabazus of a Persian fleet, and with it defeated the Lacedæmonians near Cnidos, and thus deprived them of the empire of the sea B.C. 394. He restored the long walls and the fortifications of the Piræeus and became ambassador to Persia. By some authorities he is said to have been murdered while in Persia; others assert that he escaped to Cyprus and died a natural death.

CONOPIDÆ, n. *kō-nŏp′ĭ-dē* [Gr. *kōnōps*, a gnat or mos-

quito; L. *idæ*]: genus of *Diptera* with a distinct proboscis, the last joints of the antennæ forming a short style. The wings perfect. CONOPS, n. *kō'nŏps*, typical genus of the family *Conopidæ*.

CONOSPERMIDÆ, n. *kō-no-spėr'mĭ-dē* [Gr. *kōnos*, a cone; *sperma*, a seed]: tribe of *Proteaceæ*, sub-ord. *Nucamentaceæ*. CONOSPER'MUM, *-mŭm*, genus of proteaceous plants, typical of the tribe *Conospermidæ*.

CONOVULUS, n. *kōn-ŏv'ūl-ŭs* [L. *conus*, a cone; mod. L. *ovulum*, dim. of *ovum*, an egg]: genus of mollusks, family *Auriculidæ;* found in salt marshes on the sea-shore.

CONQUER, v. *kŏng'kėr* [F. *conquérir;* OF. *conquerre*, to conquer—from L. *conquīrĕrĕ*, to seek after earnestly—from *con*, *quærĕrĕ*, to seek—*lit.*, to obtain by seeking after earnestly]: to overcome by physical force, as an enemy in battle; to vanquish; to defeat; to subdue by argument or by moral influence; to gain by perseverance or effort. CON'QUERING, imp.: ADJ. victorious. CON'QUERED, pp. *-kėrd*. CON'QUEROR, n. one who has obtained a victory. The epithet is especially applied to William of Normandy, who conquered England, 1066. Blackstone says, the right of conquest is 'a right allowed by the law of nations, if not by that of nature; but which in reason and civil polity can mean nothing more than that, in order to put an end to hostilities, a compact is either expressly or tacitly made between the conqueror and the conquered that, if they will acknowledge the victor for their master he will treat them for the future as subjects and not as enemies.' (*Blackstone, Comment.*, introd., §4.) CON'QUERABLE, a. *--ă-bl*, that may be overcome. CON'QUEST, n. *-kwĕst* [OF. *conqueste*, conquest: L. *conquisītus*, sought out, selected]: the act of overcoming by physical or moral force; success in arms; the thing conquered. THE CONQUEST, in *Eng. hist.*, the defeat of the Saxon Harold, and conquest of England by William of Normandy, A.D. 1066. —SYN. of 'conquer': to subdue; vanquish; overcome; surmount; subjugate; overpower; overthrow; defeat; rout; discomfit; reduce; crush; humble; subject; master; —of 'conquest': victory; subjection; subjugation; mastery; triumph; reduction.

CON'QUEST, in the Law of Succession in Scotland: heritable property acquired during the lifetime of the deceased, by purchase, donation, or excambion. C., in a marriage-contract is the difference between the possessions of the husband before and after marriage, allowance being made for the increased expenditure.

CONQUEST, IDA, American actress: b. Boston, Mass. Her first stage experience was at the age of eight, when she appeared as Little Buttercup in the Boston Museum juvenile production of *Pinafore*, a part she played over 300 times. Her professional début was made in 1892 with Alexander Salvini at a special matinee performance at the Tremont Theatre, Boston, in which she played

Isobel in *Rohan, the Silent.* Others of her parts are Phyllis Lee, in *The Charity Ball;* Carey, in *Alabama;* Sybil, in *The Dancing Girl;* Renée de Cochefort, in *Under the Red Robe;* Babiole, in *The Conquerors*: see Strang, *Famous Actresses of the Day.*

CONRAD, *kōn'rât*, Frederik Willem, Dutch engineer: b. Delft 1769; d. 1808. He was the pupil and friend of Brunings, who did so much for the construction of the sea dykes of Holland, and on his death succeeded him in his situation of inspector-general of sea dykes in the province of Rynland. He afterward held the office of administrator-general of the sea dykes in the Low Countries. He rendered a lasting service to his country by reclaiming large tracts of land from the sea, and more especially by the formation of a proper outlet for the waters of the Rhine,

CONRAD, George, pseudonym of Prince George of Prussia (Friedrich Wilhelm Georg Ernst), German dramatist: b. 1826, Feb. 12. He has experimented successfully with various forms of dramatic literature; and among his productions are: *Cleopatra; Yolantha; The Talisman; Christine of Sweden; Elfrida of Mount Salerno* (1875); *Catharine de Medici* (1884); *Sappho* (1887); *Where is Happiness? The Marchioness of Brinvilliers; Phœdra.*

CONRAD, Joseph, English novelist: b. Poland 1856, the son of a Polish revolutionist. He was educated in Cracow, and at 13 went to sea, becoming subsequently a captain in the merchant service. After a long experience as a sea rover, he settled in England and began putting his various experiences into literature. His writings include: *Almayer's Folly* (1895); *An Outcast of the Islands* (1896); *The Nigger of the Narcissus,* issued in America as *The Children of the Sea* (1897); *Lord Jim* (1900); *The Inheritors* (with F. M. Hueffer, 1901); *Youth and Other Tales* (1902); *Typhoon* (1903).

CONRAD, Michael Georg, *gā'ōrg*, German novelist: b. Gnodstadt, Franconia, 1846, April 5. He founded at Munich, in 1885, *Society,* a journal intended to be an organ of the 'naturalistic' school. He spent several years in Paris, and many of his sketches relate to phases of life in France. Among his novels are: *The Wise Virgins; The Fool's Confession.* He is author of a comedy, *The Emancipated,* and the drama, *The Firm of Goldberg.* On social and political questions he has written: *The German Reveille; Justice, the State, and the Modern Spirit.*

CONRAD, Robert Taylor, American lawyer and dramatist: b. Philadelphia, 1810, June 10, d. there 1858, June 27. He wrote: *Aylmere* (1852), a tragedy in which Edwin Forrest played the role of Jack Cade; *Conrad of Naples,* a tragedy; *Poems* (1852); etc.

CON'RAD: see Konrad.

CONRAD, Timothy Abbott: 1803–1877, Aug. 9; b.

N. J.: scientist. He early applied himself to the study of natural history, conchology, and paleontology, and was subsequently connected with the surveys of N. Y. state, the Union Pacific railroad, and the Mexican boundary, writing the reports of the first, and reporting the paleontological features of the others. Beside his reports he published *American Marine Conchology* (begun 1831); *Fossil Shells of the Tertiary Formations of North America* (1832); *Paleontology of the State of New York* (1838–40); *Monography of the Family Unionidæ;* etc.

CONRIED, Heinrich, American impresario: b. Bielitz, Austrian Silesia, 1855, Sept. 13. Graduated from the Oberrealschule of Vienna, he came to the United States, and was for several years a manager of German theatrical and operatic organizations. As director of the Irving Place Theatre, New York, he became known for excellent presentations of German classic drama, frequently repeated at Cambridge and other university centres. In 1904 he became director of the Metropolitan Opera-house, where on Dec. 24 of that year he presented Richard Wagner's *Parsifal* for the first time outside of Bayreuth.

CONRING, Hermann, *hĕr'män kōn'rĭng*, Dutch scholar: b. Norden, East Friesland, 1606, Nov. 9; d. Helmstedt, Brunswick, 1681, Dec. 12. He studied at Helmstedt and Leyden, devoting himself chiefly to theology and medicine; was appointed, in 1632, professor of philosophy at Helmstedt, and in 1636 professor of medicine. The title of a counselor was conferred on him by the kings of Denmark and Sweden and the elector of the Palatinate. He was then made professor of law. The German emperor likewise distinguished him. He wrote: *De origine juris Germanici* (1643); *Excertationes de re publica Germanica* (1675); and many other treatises.

CONSALVI, *kon-sâl've*, Ercole, Cardinal: 1757, June 8—1824, Jan. 24; b. Rome: reformer of abuses in the papal sates. He was made cardinal and sec. of state by Pope Pius VII., and in this capacity concluded the concordat with Napoleon, 1801. His stanch maintenance of the rights of his own sovereign against the insidious encroachments of France, offended Napoleon, who in 1806 demanded his removal from office; and the pope at last unwillingly consented, on the desire of Consalvi himself who was anxious that peace should continue. He was, however, again employed, 1815 in all the transactions between Rome and Paris, also in settling the internal affairs of the papal states. In the latter capacity, he reformed numerous abuses; and the measure known as the *Motu Proprio*, introduced by him, 1816, suppressed all monopolies, feudal taxes, and exclusive rights.

CONSANGUINEOUS, a. *kŏn'săng-gwĭn'ĭ-ŭs* [L. *consanguinĕŭs*, related by blood—from *con*, *sanguis*, blood: It *consanguineo:* F. *consanguin*]: related by birth or blood; descended from the same parent or ancestor. Con'-sanguin'ity, n. *-ĭ-tĭ*, relationship by blood.

CONSANGUINITY: relationship between persons of the same blood. It is either *direct* or lineal—the relationship between ascendants and descendants—or *collateral* or oblique or transverse, between persons sprung from a common ancestor. In the direct line, a son is said to stand in the first degree to his father; a grandson, in the second degree to his grandfather; and so on. In the collateral or oblique line, two different modes of numbering the degrees of consanguinity have been in use, the one that of the civil, the other of the canon (or papal) law still in force, in parts, in the English Church. By the civil law, the degrees are separately numbered downward to each party from the common ancestor, the common ancestor not being counted: thus, brothers, being each one removed from the father, are in the second degree of consanguinity; uncle and nephew in the third; cousins-german in the fourth; and second cousins, or the children of cousins-german, in the sixth degree. By the canon law, consanguinity in the equal oblique line, i.e., where the parties are equally removed from the common ancestor, is computed by the number of degrees between one of them only and the common ancestor; brothers being said to stand in the first, and cousins-german in the second, degree to each other. In the unequal oblique line, i.e, in which the parties stand in different degrees of relationship to the common ancestor, the degree is determined by the number of steps between the common ancestor and the party further removed from him; thus, uncle and nephew are computed as in the second degree to each other, because the nephew, the further removed of the two, stands in the second degree to the common ancestor, his grandfather. The canon law computation is more generally used by English lawyers, though statute 22 and 23 Car. I. c. 10 adopts that of the civil law. Scotch lawyers, since the Reformation, have generally used the civil law mode of computation. 'Thus, a niece is related in the second degree to her uncle, because she is related in the second degree to her grandfather, the common stock; and by the same rule, she is no further removed from her uncle's son; which abundantly discovers the absurdity of that method of reckoning.'—Erskine's *Institute*, b. i. tit. vi. s. 8. For the different methods in which the degrees of C. and affinity are computed, see MARRIAGE: SUCCESSION: HEIR: etc.

Affinity is the relationship brought about by marriage between a husband and the blood-relations of his wife, or between a wife and the blood-relations of her husband. The relations of one spouse in any particular degree of consanguinity stand in the same degree of affinity to the other spouse. There is no relationship by affinity between the blood-relations of the husband and those of the wife.

Consanguinity and affinity have been at different times and in different parts of the world more or less looked on as impediments to marriage between the parties related. Among the ancient Persians and Egyptians, marriages are said to have been sometimes sanctioned between brother and sister, and even father and daughter. The Athenians,

while permitting marriages between brothers and sisters uterine, prohibited them between the same relations by the father's side or the full blood. In the book of Genesis, we read of Abraham marrying his half-sister. The Levitical law prohibited marriage between relations in the direct line, between brother and sister, nephew and aunt, and apparently by implication, uncle and niece. A son was prohibited from marrying his father's wife.

The Roman law prohibited marriage between ascendants and descendants, a prohibition extended to relations by adoption, and even after the dissolution of that tie. In the collateral line, the prohibited degrees included brother and sister (extending to persons so related by adoption where the tie continued to exist), and all cases where one party stood *in loco parentis* to the other, as uncle and niece. Marriage between cousins-german, at one time prohibited, was declared lawful by Arcadius and Honorius. The degrees prohibited in consanguinity were by Constantine also prohibited in affinity.

By the old canon law and early decretals, marriages were prohibited between persons as far removed as the seventh degree of consanguinity or affinity—i. e., between persons who might, by the civil law computation, be within the twelfth degree to one another. The fourth council of Lateran, 1215, narrowed the prohibition from the seventh to the fourth degree; i. e., the grandchildren of cousins-german. Affinity was held to be constituted not merely by marriage, but by the spiritual relationship of standing sponsor at baptism, and by illicit intercourse; marriage being prohibited between persons one of whom had had carnal connection with a relation in the fourth degree of the other. A marriage between persons related in any of these ways was accounted incestuous, and the children bastards. The pope assumed the right of granting dispensations from impediments to marriage arising from consanguinity and affinity, a power which seems to have been exercised first in the 12th century. In no instances have dispensations been granted to relations in the direct line, but one or two dispensations are said to have been granted between brother and sister; and between uncle and niece, they are still occasionally granted in countries where the canon law continues binding. Between remoter relations, they have been common. The extent to which these prohibitions were carried, and the possibility of their being dispensed with, naturally tended to encourage profligacy and lax ideas of the marriage tie, it being hardly possible to say of any marriage that it might not one day be proved invalid. The Council of Trent restricted the impediment of affinity from illicit intercourse to the second degree.

In the countries which embraced the Reformation, a general relaxation took place in the prohibitions to marriage from consanguinity and affinity. In England, 32 Hen. VIII. c. 38 allowed all persons to marry who were not prohibited by the Levitical law; and according to the interpretation put on this statute, the prohibitions included all relations in the direct line, brother and sister, and collater-

als, when one party is brother or sister to the direct ascendant or descendant of the other; the degrees prohibited in consanguinity being equally prohibited in affinity. The prohibitions from consanguinity have been held to extend to bastard relations. But down to 1835, marriages within the prohibited degrees were valid and the issue legitimate, unless the marriage had been annulled by a declaratory sentence of the Ecclesiastical Court, which could be obtained only while both spouses were alive. By act 5 and 6 Will. IV. c. 54, all marriages within the prohibited degrees of consanguinity and affinity were made absolutely void.

In Scotland, for a very short time after the Reformation, the papal power of dispensation was exercised by the crown. Acts 1567, c. 14, and 1567, c. 15, professing to take the Levitical law as the standard, assimilated the prohibitions from consanguinity and affinity to those of England. Incest, or sexual intercourse with persons within the prohibited degrees, was, by the former statute made a capital crime. As to marriages between bastard relations, the law of Scotland is in a doubtful state; but there is no prohibition against marriage with a relation however near of a person with whom one has had sexual intercourse.

In France, the Code Napoléon prohibits marriage between ascendants and descendants lawful or natural, and persons similarly connected by affinity; and in the collateral line between brothers and sisters lawful or natural, and persons similarly connected by affinity. Marriage between uncle and niece, and aunt and nephew, also is prohibited. In Spain and Portugal, the canon-law restrictions are in full force, with the corresponding system of permissive dispensations. In various countries of Europe, as Denmark, no prohibitions from affinity, except in the direct line, are recognized. In most of the United States of America, marriage is allowed between uncle and niece; though there seems a frequent supposition that there is some sort of tacit prohibition of marriage between nephew and aunt.

CONSCIENCE, n. *kŏn'shĕns* [F. *conscience*—from L. *conscĭentĭă*, a knowing in one's self, conscience—from *con*, *scĭĕns*, knowing: It. *conscienza*]: self-knowledge or judgment of right and wrong; the power or faculty by which we judge the moral character of our own actions; that particular action of our consciousness whereby it recognizes the moral character of everything we feel, say, or do; justice; real sentiment; truth; candor; scruple: (see ETHICS.) CON'SCIENCELESS, a. CON'SCIEN'TIOUS, a. *-shĭ-ĕn'shŭs*, regulated by conscience; scrupulous or exact, as in word or deed. CON'SCIEN'TIOUSLY, ad. *-lĭ*. CON'SCIEN'TIOUSNESS, n. a scrupulous regard to the decisions of conscience. CONSCIOUS, a *kŏn'shŭs* [L. *conscĭŭs*, privy to]: possessing the power of knowing one's own thoughts and actions; having knowledge of anything without extraneous information; aware; sensible. CON'SCIOUSLY,

ad. *-lĭ.* CON'SCIOUSNESS, n. the state of being awake or sensible; the knowledge of what passes in one's own mind; the whole exercise of the mind's reflex action whereby it both feels and knows, and knows that it feels and knows. CON'SCIONABLE, a. *-shŭn-ă-bl,* governed by conscience; according to conscience; reasonable; just. CON'SCIONABLY, ad. *-ă-blĭ.* CON'SCIONAB'LENESS, n. *-ăb'l-nĕs.* CONSCIENCE CLAUSE, an article in an act or law which relieves persons who object to engage or participate in religious acts—as in taking judicial oaths, or having their children present during the time set apart for religious instruction at school. CONSCIENCE-MONEY, money forwarded, as a rule anonymously, to a financial officer for unpaid taxes or other dues. CONSCIENCE-PROOF, a. proof against the monitions and reproofs of conscience. SELF-CONSCIOUSNESS, the sense of personal idenity.—SYN. of 'conscientious': scrupulous; faithful; exact; upright; just;—of 'conscious': aware; sensible; apprised;—of 'consciousness': feeling; sensation; perception; sensibility; susceptibility; emotion; passion; sense; reflection.

CONSCIENCE, in philosophy: the power of an individual to judge of the moral worth of his acts, to approve and condemn his conduct, to feel obligation or a sense of duty. The person who has standards of living which are known and to which he strictly adheres is said to be conscientious. From derivation the word means the knowledge of the end or purpose and to this meaning the moral experience of man has added the *approval* of this end as in accordance with ideals or customs. Popularly all sane persons are held to know the difference between right and wrong. Historic debate has raged around the question of the innateness or the experiential character of this knowledge. The intuitionists have maintained the former and the empiricists the latter view.

There are undoubtedly genuine conscience phenomena in the way of bodily reactions and attitudes. These have probably taken their origin in connection with taboos, prohibitions and feelings of sacredness in respect to fetiches, tribal councils, race customs and practices, etc. among primitive peoples. Taboos and sacred objects were to be approached only after much ceremonial and then only certain persons were allowed to approach or handle them under penalty of immediate death. There is now among men a genuine emotion of sacredness with a distinct bodily expression. There is in it palpitation of the heart, a feeling of weakness in the lower limbs with a disposition to prostrate oneself, a sense of heaviness in the chest accompanied by a strong upward pulsation that invades the whole thorax and sometimes passes through the neck and upward as far as the top of the skull filling the head with a strong feeling of outward pressure, and attention is directed inward rather than toward objects of sense. Boys, when about to commit acts of depredation and vandalism not unfrequently find

themselves incapacitated for their undertakings by the storm of bodily happenings that arise. Recidivists in crime who have served several sentences in prison and are becoming somewhat broken as a result of their confinement, report that when they try to commit further crime they are seized with a strange and unaccountable shaking which renders them incapable of proceeding, if it does not actually paralyze them so long as they have the impulse to steal or commit other crime. The 'shakes' as they are called are well known to all criminals and an old pal is looked upon as down and out when he has once been seized by them. 'Losing one's nerve' is more than a figure of speech; it may be a distinct conscience reaction. Detectives often rely more upon bold accusations that are pure guesses, which when they come near the truth extort confessions, than upon evidences they may have gathered.

Psychologically a man's acts and general conduct form a systematized whole through which run certain principles and ideals of action. These ideals are simply so many lines along which his previous life has traveled for the most part. Any attempt or even impulse to act out of harmony with this general trend will set up more or less widespread bodily stirrings that may very well have given rise to those states of mind which have come to be called conscience feelings. Action along the pathways of habit is smooth, unhindered and uninhibited and action along fresh channels awakens those conditions of bodily change which form the basis of emotional feeling. The conditions of emotional feeling are just those that stop action until the character can be determined upon rightly.

CONSCIENCE, *kōng-se-ŏngss'*, HENDRICK: most fertile and original writer of fiction in Belgium: 1812, Dec. 3—1883, Sep. 10; b. Antwerp. He educated himself until his 15th year, when he entered a school, where he was engaged to assist the master in teaching. On the breaking out of the revolution in 1830, Conscience joined the ranks and served till 1834. Having failed in all his attempts to obtain employment, he tried his hand at writing, and composed in Flemish the novel, *In het Wonderjaer* 1566 (Ghent 1837), which left him in debt with his printer. At this time, the painter Wappers procured him some slight assistance from the king. Conscience now wrote his *Phantasia*, and his historical novel, *De Leeuw van Vlanderen* (Antw. 1838). He was then appointed by the king to the position of registrar at the Royal Acad. of Painting at Antwerp. In 1845, he was appointed to instruct the royal children in Flemish. At his death, he held the post of keeper of the Wiertz Museum. Conscience wrote numerous tales and novels, most of which have been translated into French and German, and some into English—as, for instance, his *Sketches of Flemish Life*, of which several English translations have been made: *Demon of*

Gold, Lion of Flanders, etc. C. has written two historical novels, *Geschiedenis van Græf Hugo van Craenhove* (1845), and *Jakob van Artevelde* (1849), which are esteemed among his best; but his *forte* lies rather in the delineation of simple village life. His *Illustrated History of Belgium* (1845) is interesting as a national work, but of little value as an authority. In 1870, he published *Bavo en Lieveken;* in 1871, *De Kerels van Vlanderen;* in 1874, *De Keus des Harten* and *Eene Verwarde Zaak;* in 1875, *Schandevrees;* in 1876, *Gerechtigheid van Hertog Karel.* C. contributed largely to the revival of Flemish literature. Many of his works have been translated into almost every European language. In 1881, on the occasion of the appearance of his hundredth volume, the Flemish people paid him a splendid tribute. The 10th anniversary of his death was observed in Antwerp with public ceremonies.

CONSCIOUSNESS. There are, as Upham says, certain original and authoritative grounds of belief. That is, there are certain reasons for our convictions which are first in order, and which compel attention by their very nature. For example, the senses give us the world of extension and resistance. The memory gives us again presentations which are lost in the unfathomable past. Testimony furnishes us with the knowledge of beings and events which do not otherwise fall within our mental horizon. Reason gives us the laws of thought, the axioms of mathematics; and by reasoning we arrive at mediate knowledge. That is, the comparison of two objects with one another being difficult or impossible, we sometimes aid ourselves by comparing each of the two with a third, and in that way determine the relation of the first two which cannot be directly compared.

Now among these original and authoritative grounds of belief we find consciousness. This word signifies sometimes a power, sometimes a process, and sometimes a product. In this respect it is like other psychological terms. In order to clear thinking, of course, it must always be understood in which one of these three ways the term is employed.

I may say 'Man is a conscious being,' that he is a being who may be conscious. Or I may say that I am conscious of some mental act or state; that I think, or feel, or will. Of course, if I did not have the power I could not perform the operation. But having the power, and performing the operation, I use the same word to designate the two different ideas. Or one may say, 'Consciousnesses may be classified into knowledges, feelings, and volitions;' in which case he is not speaking of the power, nor of the process, but of a set of products which have resulted from the activities of the power in question.

Of consciousness as an original source of knowledge two interesting and important facts may be stated.

1. Consciousness is a condition and an accompaniment of all psychic acts and states. That is, when one actually knows, he is conscious of that fact. When he really feels,

he knows that he feels, and when he truly decides, he knows that he decides. There may be physical conditions of psychic activities which do not come into consciousness, but all mind processes are accompanied by consciousness. They are conditioned by it. Without it they could not be.

2. While consciousness is a condition and accompaniment of all soul movement, consciousness is the only source of information regarding the acts and states of the soul. That is to say, I cannot have sensation unless I am conscious of it. To speak of unconscious sensation is to talk nonsense. But I do not know sensations by consciousness alone; the nervous system also is employed. The nervous system alone cannot give me consciousness. Cases are numberless in which the nervous system is perfect, and all the physical conditions of sensation are present, but there is no sensation because the mind is intent upon other things. Consciousness the power is otherwise employed. The soldier who does not know his wound because he is inspired by the spirit of battle; the student who does not hear the clock strike because he is engaged on his lesson; the mother who watches over a sick child and does not know herself to be weary until she drops senseless, are cases in point.

But regarding the acts and states of the soul itself consciousness is the only witness. No one sees my thought, or my willing, or my feeling, except myself, and I do not see my thought, or feeling, or willing by the senses, by memory, by imagination, by reason, or by reasoning. I see my knowledges, my feelings and my willings by consciousness alone.

But consciousness while it gives us the acts and states of the mind does not give us the mind itself. No man is conscious of his mind. He is conscious of what his mind does, and he knows that there must be a mind because he finds activities which cannot be accounted for without mind. Just as he knows extended, resisting being because he finds extension and resistance, so he knows psychic being because he finds in himself psychic facts. The reason affirms mind when it witnesses or becomes informed of mind processes. No mind, no mental activities of any kind whatsoever. Mental activities, then necessarily mind. There is no question here. We are dealing with the very laws of thought.

One should dwell at least for a moment on the impossibility of conscious acts or states prior to the existence of a being capable of them. Some persons affirm that the mind is the sum of psychic activities; that the mind is a stream of consciousness, etc. The obvious question is, if this be true, whence did the first psychic activity arise? The substantial existence of mind is ignored or denied. Mind is declared to be the sum of psychic phenomena, a stream of consciousness. But beings which do not exist cannot appear or act, and streams are composed of drops—of water, or something else—and if a stream is composed of drops there is a source whence they come, some fountain

whence they arise; and a stream of conscious activities must head in a conscious being, that is to say, a being capable of consciousness. To affirm the contrary is to reverse the old proverb, 'Out of nothing nothing comes,' and to declare that out of nothing come a number of psychic phenomena which collectively make up mind; out of nothing comes a stream of consciousness which makes up mind.

The word 'consciousness' is often loosely used to signify knowledge no matter how derived. One says, 'I was conscious of your presence,' when he really means, by sense perception, through consciousness, under the laws of reason, I became aware of your presence. Of course there is no objection to this colloquial usage, provided persons understand what they are saying, and do not profess to speak accurately or philosophically.

Some writers distinguish between common and philosophical consciousness. They say that all persons are to a certain extent aware of their psychic acts and states. The plowman, the railway mail clerk, the street laborer, each knows that he knows, and knows that he is warm or cold, that he is joyous or depressed, that he approves or disapproves himself, that he wills good or evil. But these writers say that the philosopher dwells on his soul states and acts; that he recalls them when they have vanished, that he compares, and otherwise seeks to render clear and definite his knowledge of his soul self.

There is no question but that this distinction is true; but it should be remembered that the power in the two men is the same; that the field in the two men is like; that is, each studies his own soul. He has no direct knowledge of the acts or states of any other soul than his own; and he does not observe the knowledges, feelings, or willings of any man except himself. And, third, it is also to be remembered that the ordinary man is oftentimes more candid, less under the dominion of theory, and therefore more accurate in his observations than the man who has better equipment, and larger opportunity, but who is mastered by some scheme which he desires to prove.

In order to attain great efficiency in consciousness, one must look after his body, mind, and heart. Laziness or looseness in thinking, dyspepsia or any other chronic form of ill health, mental dishonesties of all sorts, and moral weaknesses of whatever kind, all tend to weaken attention, and therefore to render the acts of consciousness doubtful and uncertain.

Immanuel Hermann Fichte (q. v.) *Contributions to Mental Philosophy,* trans. by Morell (Longmans 1859), made an attempt to establish the existence of a Preconscious Mind, distinct from our conscious life, and not dependent like that upon the bodily organization. He considers the power of germination and growth—or that energy, whatever it is, that unfolds the germ and conducts it to a completely formed organization—as a function of the mind or soul; and couples this power of germination

with the following things—namely, the instincts; the processes of intelligence that we seem to go through without being aware of the steps, as in the sudden inspirations of men of genius; with all the mysterious phenomena of second-sight, clairvoyance, etc.; and the aggregate of this he erects into a preconscious mind or soul, the contrast of C. as above defined. For the varieties or divisions of our conscious states, see MIND: see also DOUBLE CONSCIOUSNESS.

CONSCIOUSNESS, DISORDERS OF: see CATALEPSY; HYSTERIA; EPILEPSY; INSANITY; MIND; DOUBLE CONSCIOUSNESS; etc.

CONSCRIPTION, n. *kŏn-skrĭp'shŭn* [F. *conscription*—from L. *conscriptĭōnem*, a writing—from *con*, *scriptus*, engraved or written]: a forced enrolment of all males between certain ages for naval or military service, adopted in France and other continental countries. CONSCRIPT, n. *kŏn'skrĭpt* [F. *conscrit*—from L. *conscriptus*]: one drawn by lot from enrolled list: ADJ. enrolled; registered. CONSCRIPT-FATHERS, senators of anc. Rome, so called because when Brutus added 100 to the number of the senate, the new names were written together (*con-scripti*) with the old.

CONSCRIP'TION, in Milit.: defined by Littré as 'the call to military service by the drawing of lots;' thus not properly synonymous with compulsory military service. The word applies to the system which obtained in France, with intervals, from 1798 till the end of Napoleon III.'s reign. Some other armies have been similarly recruited. In France, all citizens were liable to be called; but only a certain annual contingent of men for the army (sometimes greater, sometimes less) was demanded from the country; and in the several communes, the corresponding proportion of the youths of the district who had reached military age were selected by lot. With this system was practically bound up the possibility of buying one's self off, or of paying for a substitute. Conscription therefore differed widely from the systematic universal service now required in France, Germany, and some other countries. Since 1872, personal military service is demanded from every Frenchman not physically incapacitated. All are called to enter the army at the age of 20; but those who choose to enlist may enter at 18. The term is for 5 years in the regular army, 4 in the army reserve, 5 in the territorial army (militia), and 6 in the territorial reserve. This brings the conscript to 40 years of age, when his liability to service ceases. The law of 1872, reorganizing the French army, forbids the providing of substitutes by conscripts. An account is kept of the number of youths in France who reach the age of 20 in each year (about 280,000). All those are exempt from military service who are under 5 ft. 2 inches in height; or have any natural infirmities unfitting them for active service; or are the eldest of a family of orphans; or are the only sons of widows, or of disabled fathers, or of fathers above 70 years of age; or are intended for the priesthood; or are pupils at certain colleges. Moreover if two brothers be called to serve, and the younger is

efficient, the elder is declared exempt; and if of two only brothers one is already in the army, or has retired through wounds or infirmity, the other is exempt. Culprits and felons are not allowed to enlist. The law of 1872 making military service obligatory on all Frenchmen (save in the above cases) has assimilated the French army system to that enforced in Prussia since 1813.

CONSECRATE, v. *kŏn'sĕ-krāt* [L. *consĕcrātus*, dedicated or devoted to a deity—from *con*, *săcer*, sacred: It. *consecrare:* F. *consacrer*]: to make or declare sacred; to set apart or dedicate to the service and worship of God; to render venerable or make respected. CON'SECRA'TING, imp. CON'SECRA'TED, pp.: ADJ. made sacred; dedicated. CON'SECRA'TOR, n. *-tĕr*, one who. CON'SECRA'TION, n. *-krā'shŭn* [F.—L.]: a separation from a common to a sacred use; the act of dedicating to the service of God; the act of separating a person for the office of a bishop. CON'SECRA'TORY, a. *-tĕr-ĭ*, making sacred. CON'SECRA'TEDNESS, n.—SYN. of 'consecrate': to dedicate; devote; hallow.

CONSECRA'TION: act of solemnly and sacredly dedicating a person or thing to the service of God. It was one of the most widely spread religious ceremonies of the ancient world, being practiced in India, Egypt, Chaldæa, Judæa, Greece, Rome, Britain, and other countries. In the Old Testament, we read of the C. or sacred dedication of the first-born, both man and beast, to the Lord; also the sacred dedication of the Levites, of the tabernacle and altar, of fields, houses, walls, etc. This custom, at least so far as regarded places and things, did not pass immediately from Judaism to Christianity, for the latter being more or less a persecuted religion until the time of Constantine, could not venture to indulge with safety in any public ceremonialism; but no sooner was the sword of persecution sheathed than, according to Eusebius, 'the sight was afforded us, so eagerly desired and prayed for by all—the festivals of dedications and consecrations of the newly erected houses of prayer throughout the cities.' Eusebius himself describes the C. of the church built at Jerusalem by Constantine, 335. The practice of consecrating religious edifices has continued to the present day in the Roman and Anglican churches. The forms were at first very simple, consisting chiefly of prayer, the celebration of the Lord's Supper, thanksgiving, and benediction; but they afterward became more numerous and imposing, while, also, the bishops and higher dignitaries assumed to themselves all the power of consecrating. An important part of the C. of Rom. Cath. churches consists in the deposition of relics for a time upon the altar. In the English Church, each bishop is left to his own discretion as to the form of C. to be adopted, but that most generally used is the form sent down by the bishops to the lower houses of convocation 1712. The English Church retains also the C. of burying-grounds.

C. OF ARCHBISHOPS AND BISHOPS.—According to a canon of the first Nicene Council, there must be four, or

at least three bishops present at the consecration of an archbishop or bishop. The form used in the Church of England is that prepared in the reign of Edward VI. The Roman Church denies the validity of English orders generally, as derived from heretical and improperly consecrated bishops. They had an old story, refuted by their own historian Lingard, which is known as that of the 'Nag's Head Consecration.' According to this story, Abp. Parker was consecrated at the Nag's Head Tavern, Cheapside, by one of the Prot. bishops present laying a Bible on his head, and saying: 'Take thou authority,' etc. Lingard thus relates the facts: 'Barlow, the deprived Bishop of Bath, and Hodgkins, once Suffragan of Bedford, who both had been consecrated according to the Rom. Cath. pontifical, in the reign of Henry VIII., and Scorey, the deprived Bishop of Chichester, and Coverdale, the deprived Bishop of Exeter, who both had been consecrated according to the Reformed ordinal, proceeded to confirm the election of Parker, and then to consecrate him after the form adopted in the reign of Edward VI. A few days later, Parker, as abp. confirmed the election of Barlow to the see of Chichester, and of Scorey to that of Hereford, and with these for his assistants, consecrated all the other prelates elect.' The consecration took place in the chapel at Lambeth, as appears by the abp's. register, and Lingard says that there is nothing to countenance the supposition of the entry being other than authentic. The story probably arose from a fact, mentioned by Fuller, that the commissioners who confirmed Parker's election dined at the Nag's Head, a tavern much frequented by the country clergy.

Consecration of the Elements: see Lord's Supper.

CONSECTARY, n. *kŏn-sĕk'tĕr-ĭ* [L. *consectārĭŭs*, that follows logically]: in *OE.*, a deduction from premises; a consequence; a corollary.

CONSECUTION, n. *kŏn'sĕ-kū'shŭn* [L. *consĕcūtĭōnem*, a consequence—from *con*, *secūtus*, followed]: a train of consequences from premises; succession; series of things that follow each other. Consec'utive, a. *-sĕk'ū-tĭv* [F. *consécutif*, consecutive—from mid. L. *consecūtīvus*]: following one another in regular order; succeeding: in *music*, a term applied to octaves and fifths, whose succession, according to the rules of harmony, is strictly forbidden. Consec'utively, ad. *-lĭ*. Consec'utiveness, n. *-nĕs*.

CONSEGUINA, *kon-sā-ghē'nâ:* volcano of Nicaragua, occupies a promontory on the s. side of Fonseca Gulf, about 10 m. from the Pacific Ocean. The crater, about 4,000 ft. above the mean level of the surrounding country, is about half a mile across, and its interior descends perpendicularly 200 ft. In 1835, a fearful eruption, the last on record, converted into a waste a large tract of grazing-land.

CONSENSUAL, a. *kŏn-sĕn'shû-ăl* [*con*, together; L. *sensus*, discerned by the senses]: in *phys.*, a term applied

to movements contrary to, or independent of, the will, which arise from previous contrary movements, as in the contraction of the iris when the eyes are voluntarily directed upward; excited or caused by sensation or reflex action. CONSENSUS, n. *kŏn-sĕn'sŭs* [L. *consensus*, agreement]: unanimity; agreement; concord: see CONSENT.

CONSENSUAL, in psychology and physiology: this term has been applied to involuntary movements taking place alongside of voluntary where they contribute to the work in hand. It is used in place of the terms, secondarily or semi-automatic, which have a much better established usage. An illustration may be found in the reflex movements of convergence and accommodation in the optical muscles when the will has directed the turning of the gaze upon some object. Without these reflexes clear vision would be impossible yet we have little or no direct voluntary control over them.

CONSENT, n. *kŏn-sĕnt'* [F. *consentir*—from L. *consentīrĕ*, to agree—from *con*, together; *sentīrĕ*, to think, to feel; It. *consentire*]: a yielding of the mind or will to the proposals or conditions of another; a conceding what may be withheld; concurrence; agreement: V. to think or agree together with another; to yield; to agree in mind and will; to permit. CONSENT'ING, imp.: ADJ. giving consent; approving. CONSENT'ED, pp. CONSENT'ER, n. one who. CONSEN'TANE'ITY, n. *-tă-nē'ĭ-tĭ*, mutual agreement. CONSENTANEOUS, a. *kŏn'sĕn-tā'nĭ-ŭs*, agreeable; consistent with. CON'SENTA'NEOUSLY, ad. *-lĭ*, CON'SENTA'NEOUSNESS, n. CONSENTIENT, a. *kŏn-sĕn'shĭ-ĕnt*, agreeing in mind. CONSENT'INGLY, ad. *-ĭng-lĭ*.—SYN. of 'consent, n.': agreement; assent; acquiescence; concurrence;—of 'consent, v.': to assent; yield; agree; accede; comply; concede; allow: acquiesce; admit; concur; permit; accord.

CONSENT', in Law: foundation of all contracts and legal obligations of every kind. This statement is often in the mouths of lawyers, but its magnitude and importance are probably not always apparent even to them. The doctrine that the free consent or the parties bound, and not the will of any earthly legislator, or the form in which that will is expressed, constitutes the binding element in contracts, flows as an inevitable logical consequence from the doctrines of personal and political freedom. Yet this is frequently forgotten in speech and action; thus, it is said that persons are married by the priest, and divorced by the court, whereas it is obvious that a valid marriage, like every other contract, can be made and unmade only by the contracting parties; and that all that either civil or ecclesiastical authority can do, is to asertain and register in due form at the instance of one or other of them, whether it *has* been made or unmade. From overlooking this point of view, differences between legal systems, which are merely external, are often supposed to be fundamental. Thus the law of Scotland, which admits several ways of proving matrimonial consent which the law of England

rejects, is on this account supposed to differ from it *in principle*. The only question between them, in reality, is as to whether the circumstances which the law of Scotland admits in proof of the existence of consent do or do not prove it in point of fact. If it be true that the only means by which it can be ascertained that two persons do agree to be man and wife, is by their declaring their agreement either before a clergyman or before a specified civil officer, then the law of England does right in rejecting all other evidence. If, on the contrary, the fact can be established, as is believed in Scotland, by other means, such as a declaration before witnesses, or an exchange of writings, then the law of Scotland is right in admitting these means of proving it, and making the question of marriage or no marriage, as it does, one of simple proof. The difference between the two systems is thus seen to be one not of principle, but of expediency—a question, not in the law of marriage, or of contracts, which is the same in both countries, and in every country, but in the law of evidence.

The practical question as to how consent shall be proved, is one surrounded at all times with great difficulty. That its absence may be assumed in the case of all persons of imperfect understanding, and, consequently, that the power of contracting should be denied to idiots, madmen, and pupils, helps us but a little way. The real difficulty lies in distinguishing, in the case of grown and sane men, between such *real* consent as may be safely assumed to be a deliberate act of the reason, taking that word in its widest sense, and such *apparent* consent as may have had its motive in caprice, passion, ignorance, or any temporary and accidental aberration of mind. See CONTRACT.

CONSENTES DII, *kŏn-sen′tēz dī-ī:* in Roman mythology, the 12 chief deities· Jupiter, Apollo, Mars, Neptune, Mercury, Vulcan, Juno, Vesta, Minerva, Ceres, Diana, Venus.

CONSENTIENCE, n *cŏn-sĕn′-shĕnz* [Lat. *con*, against, *sentire*, feel]. The unity of consciousness as immediately felt Sometimes employed as closely synonymous with CONSENSUAL (q v.).

CONSEQUENT, a. *kŏn′sĕ-kwĕnt* [F. *conséquent*—from L. *consĕquens* or *consĕquen′tem*, following thoroughly: L. *consĕquentĭă*, a consequence—from *con*, *sequens*, following: It. *consequente*]: following as a natural effect, or by necessary inference: N. that which follows a cause; an effect. CON′SEQUENCE, n. *-kwĕns*, that which naturally follows an effect; an event or effect resulting from some preceding act or cause; result or issue; importance. CON′SEQUENTLY, ad. *-lĭ*. by or in consequence; necessarily. CON′SEQUEN′TIAL, a *-kwĕn′shăl*, following as the effect; important; conceited; pompous. CON′SEQUEN′TIALLY, ad. *-lĭ*, with a just deduction of consequences; by consequence; eventually; not immediately. IN CONSEQUENCE, by reason of, owing to; as the effect of. OF NO CONSEQUENCE, not im-

portant in itself.—Syn. of 'consequence': result; end; effect; importance; weight; moment; influence; deduction; induction; conclusion;—of 'consequently': accordingly; therefore; wherefore; then; hence; thence; since; because; as; so. See Antecedent.

CONSEQUENT POLE FIELD MAGNETS. See Electrical Machines.

CONSERVATION, in philosophy: in metaphysics this term is made to cover whatever is permanent, persistent and abiding in the universe. The early philosophers of Greece were very much impressed by the multiplicity and changeableness of the world of objects and so they set to work to find unity in the multiplicity and stability amidst the changeableness of things in general. They inquired after a stable principle out of which all other things were made or developed and which would constitute the real or fundamental character of the universe. One found this in water and another in air, etc. Conservation means the giving of permanency and stability. Universal or cosmic laws would be spoken of as conservations. The most important expression of a universal law is to be found in the law of the conservation of energy or of force. It was first definitely formulated by a French scientist by the name of Joule. This law states that the amount of energy in the universe is fixed and constant; that energy can neither be created nor destroyed. This will be true of any body or system of bodies not acted upon by outside influences, but as only one such system of bodies as this can be found and that is the universe itself, the law is true only of the universe. This law got a fairly accurate statement among the Greeks and that in terms of matter. Spinozagave as one of his cosmic principles that everything tends to persist in its own being. This has been looked upon as one of the best statements that have been given to the conservative tendency in the world. In biology and physiology this law reappears in terms of heredity, The law of heredity may be stated thus, following analogy with Spinoza: Every form of plant and animal life tends to persist in its own being by repeating itself in succeeding generations. The biblical statement is that they reproduce after their own kind. Heredity is then the conservative principle in organic life. The principle of heredity is nicely seen in the fact that certain organs of the human body which should naturally disappear at certain times in life, tend to persist after they have lost all functional usefulness. Such organs are spoken of as atavisms or reversions. On account of their lack of functional vigor they show less powers of resistance to disease attack. Such organs have then to be removed by surgical operation. Examples of this are wisdom teeth, superfluous hairs, vermiform appendix, etc. In physiology the conservative force is found in habit. All forms of bodily activities tend to repeat themselves indefinitely in the same form. Rhythmical movements as opposed to random

and spontaneous movements illustrate the same principle. Recurrent utterances in children and old people and fixed ideas in reformers and the insane come under the same law. Tarde restates the law for society in terms of imitation. For him society is simply imitation. Customs, traditions, ideas and social movements repeat themselves both in the individual and in succeeding generations. All governments seem to exist by alternately appearing in the hands of the conservatives and the radicals. The first stick closely by the older traditions and forms of government and the others struggle to introduce new measures in the name of reform.

CONSERVATOIRE, *kŏn-sėr'vă-twâr*, or CONSERVATORIUM—in the United State, sometimes CONSERVATORY (Ital. *conservatorio*): schools instituted for advancing the study of music and maintaining its purity. In the earliest times, these schools were partly attached to benevolent institutions and hospitals; others were supported by opulent private individuals. They were intended originally for foundlings, orphans, and the children of poor parents. Some trace their origin to St. Ambrose, Bp. of Milan in the 4th c., or St. Leo, in the 5th. The scholars, male and female, all received free board, lodging, clothing, and were taught to sing and play. Extra boarders also were admitted on paying a fee. In Naples, there were at one time three such schools and in Venice four, expressly for females. In 1818, the Neapolitan conservatoires were reduced to one, under the name of Real Collegio di Musica. The Venetian conservatoires shared in the downfall of the Venetian republic. A new grand conservatoire was founded at Milan 1808, which still exists. In France, the necessity of a school for educating singers gave rise to the *Ecole Royale de Chant et de Déclamation*, 1784. During the French Revolution, in consequence of the scarcity of instrumental musicians for the army, the government decreed the erection of an Institut National de Musique, 1793, which was changed into the present establishment, 1795, under the name of the Conservatoire de Musique. the yearly expenses of this conservatoire were fixed at 240,000 francs, the number of masters were 115, and the pupils of both sexes amounted to 600. 1802, the expense was reduced to 140,000 francs, with a corresponding reduction in the number of masters and pupils. The course of study is divided over 66 different classes, in which all appertaining to music and also declamation is taught by the best masters. The elementary works published by this conservatoire for all instruments are known over the whole world. Other important conservatoires are those of Brussels (founded 1833), Prague, Vienna (1816), and the great conservatorium of Leipzig, established 1842 under the auspices of Mendelssohn; also those of Cologne, Munich, Stuttgart, Berlin, etc. The Royal College of Music in London, which received a charter in 1882, is designed to rival the conservatoires of the Continent. In some of the chief American cities are institutions known by the

name conservatory, of which the largest and most notable is in Boston.

CONSERVA'TOR OF THE STAPLE: see CAMPVERE.

CONSERVATORS OF THE PEACE: officials who have in charge the public peace. In Britain, the sovereign, by virtue of his office, is the principal conservator of the peace. The function which he thus possesses he may delegate, thus constituting a subject a conservator of the peace. The office, however, must always be exercised in the sovereign's name, which explains the common expression, the king's or the queen's peace. Several high officers of the crown, the chancellor or keeper, the lord high steward, the lord marshal, and the lord high constable, when there are such officers, all the justices of the queen's bench, the master of the rolls, are conservators of the Peace throughout the kingdom, and many commit breakers of the peace or bind them in cognizances anywhere. Other judges possess this power only within the limits of their own jurisdiction. The sheriff and coroner are conservators of the Peace within their respective counties, and constables, tithing-men, etc., within their jurisdictions. But in addition to these official conservators, others were appointed expressly for the purpose, previous to the appointment of justices of the peace, in the reign of Edward III. Their powers were far inferior to those of the justices, being confined exclusively to the function which the name indicates. The lords of manors frequently possessed the powers of conservators within their manors by prescription, and it was not unusual for lands to be held on the tenure of discharging the duties of a conservator of the peace within the county. Lastly conservators were appointed by letters-patent from the crown in cases of emergency for the preservation of the peace in particular districts. All these different kinds of conservators, with the exception of those judges and others who are conservators *ex officio*, were superseded by the appointment of justices of the peace (q.v.). In the United States, the assignment of persons conservators of the peace are of the same general kind as in Great Britain; but with the fundamental difference in theory, which appears in legal phrascology, that the 'peace' is the peace of the United States of or the states severally, and its conservators are held to the duty of preserving the peace of the people, to whom sovereignty pertains.

CONSERV'ATORY, in Horticulture: house for the cultivation of tender exotic plants, which, though requiring protection from frosts, and a little assistance of artificial heat, do not need the heat of the hothouse or, as it is often called in England, the stove The only distinction between a conservatory and a green-house is, that in the former the plants grow in borders of earth; in the latter they are in pots, and these two characters are often combined. The structure, management, etc., are much the same for the conservatory as for the green-house; but in

the warmer parts of the country, the roof and even the sides are with advantage made capable of being removed in summer. In all situations, the most free and frequent ventilation is requisite. A conservatory is often attached to a residence, so as to communicate directly with one or more of the apartments, instead of being placed in the garden. For *Conservatory of Music*, see CONSERVATOIRE.

CONSERVE, n. *kŏn'sėrv* [F. *conserver*, to preserve—from L. *conservārĕ*, to keep thoroughly—from *con*, *servārĕ*, to keep, to preserve; It. *conservare*, the act of keeping thoroughly]: fruit crushed and preserved in sugar; jam; any fruit or vegetable matter preserved by sugar: conserves are made by confectioners as sweet-meats, and by druggists as vehicles for more active medicines: V. *kŏn-sėrv'*, to keep in sound or safe state; to defend from injury; to preserve fruits, etc., by means of sugar. CONSERV'ING, imp. CONSERVED', pp. *sėrvd'*. CONSER'VER, n. one who. CONSER'VABLE, a. *-vă-bl*, that may be preserved from injury. CONSER'VANCY, n. *-văn-sĭ*, the keeping or preserving from undue or irregular use, or injury, as the fishing of a river, or the health of a town. CONSERVATION, n. *kŏn'sėr-vā'shŭn*, the keeping of a thing in a safe or entire state. CONSER'VANT, a. preserving; having the power of preserving from decay. CONSER'VATIVE, a. *-vă-tĭv*, able to preserve from loss, decay, or injury: N. that which preserves; in *politics*, one opposed to unwarranted or hasty changes in the state—first used of the tory party about 1830: see WHIG AND TORY. CONSER'VATIVELY, ad. *-lĭ*. CONSER'VATIVENESS, n. CONSER'VATISM, n. *-tĭzm*, the principles and opinions of conservatives. CON'SERVA'TOR, n. *-vā'tėr*, an individual who has the charge of preserving anything, as the public peace or a museum. CONSER'VATORY, a. *-vă-tėr-ĭ*, having the quality of preserving from loss or decay: N. also CONSER'VATO'RY, n. *-vă-tō'rĭ*, a place where anything is kept as nearly as possible in its natural state, as plants in a greenhouse, etc.; a greenhouse. CONSERVATOIRE, n. *kŏn-sėr'vă-twâr* [F.]: a public school of music. CONSERVATION OF ENERGY, the principle that the amount of energy in the universe is constant, and can only be changed in kind, as into heat, light or sound, but not diminished or increased: see FORCE.

CONSHOHOCKEN, *kŏn-shō-hŏk'ėn:* borough of Montgomery co., Penn., on the Schuylkill river and the Philadelphia and Norristown railroad, 3 m. s. of Norristown, 13 m. n.w. of Philadelphia. It contains five churches, a national bank, one newspaper, several blast furnaces, machine shops, and rolling mills, three cotton mills, and manufactories of gas and water pipes and artificial stone. It is connected by bridge with West Conshohocken on the s.w. side of the river, which has a station of the Reading railroad. Pop. (1870) 3,071; (1880) 4,561; (1890) 5,470; (1900) 5,762.

CONSIDER, v. *kŏn-sĭd'ėr* [F. *considérer*—from L. *considĕrārĕ*, to look at carefully: It. *considerare:* according to

some connected with *sīdĕra,* the stars]: to look at carefully; to fix the mind on; to think on with care; to ponder; to meditate on; to reflect; to deliberate. CONSID'ERING, imp. CONSID'ERED, pp. *-ėrd.* CONSID'ERABLE, a. *-ėr-ă-bl,* that may be considered; important; valuable; moderately large. CONSID'ERABLY, ad. *-ă-blĭ,* in an important degree. CONSIDERABLENESS, n. *kŏn-sĭd'ėr-ă-bl-nĕs,* state of being considerable; importance; moment. CONSIDERATE, a. *kŏn-sĭd'ėr-āt,* thoughtful; careful; prudent; having regard to. CONSID'ERATELY, ad. *-lĭ,* in a considerate manner; calmly; coolly. CONSID'ERATENESS, n. CONSID'ERA'TION, n. *-ā'shŭn,* mature thought; reflection; regard; notice; claim to notice; that which induces to an agreement, as in a contract or bargain. CONSID'ERING, a. deliberative; reflective; that considers: PREP. taking into account; making allowance for—as in the sentence, 'It is not possible to act otherwise, *considering* the weakness of our nature.' CONSID'ERINGLY, ad. *-lĭ.*—SYN. of 'consider': to ponder; meditate; contemplate; muse; reflect; regard; weigh; resolve; study; examine; deliberate; estimate; think; view; —of 'considerate': discreet; thoughtful; prudent; serious; deliberate; careful; reflective.

CONSIDERANCE, n. *kŏn-sĭd'ėr-ăns* [see CONSIDER]: in *OE.,* consideration; serious reflection. CONSIDERED, a. *kŏn-sĭd'ėrd,* in *OE.,* reflected upon; thought upon carefully; 'considered' is in common use in modern English with the prefixes *well* and *ill,* as a *well-* or *ill-considered* scheme. CONSID'ERINGS, n. plu. in *OE.,* considerations; deliberations.

CONSIDÉRANT, *kōng-se-dā-rŏng',* VICTOR-PROSPER: 1808, Oct. 12—1893, Dec. 7; b. Salins, dept. of Jura. After being educated at the Polytechnic School of Paris, he entered the army, which, however, he soon left to promulgate the doctrines of Fourier (q.v.). After the death of his master, Considérant became the head of the Societarians, and undertook the management of *The Phalanx,* a review devoted to the maintenance and spread of their opinions. Having gained the support of a young Englishman, Mr. Young, who advanced the required sum of money, Considérant established 1832, on a large estate in the department Eure et Loire, a socialist colony or *Phalanstère;* but the experiment failed and with it *The Phalanx* fell to the ground. However, a new organ of co-operative doctrine, the *Démocratie Pacifique,* was soon established, and was edited by Considérant who displayed great zeal, perseverance, and ability, in his hopeless battle with the laws of society as now constituted. Among his numerous writings, the chief is the *Destinée Sociale,* dedicated to Louis Philippe. In 1849, Considérant was accused of high treason, and compelled to escape into Belgium, whence he emigrated to Texas, returned to Brussels, and again went to Texas, where he founded a Societarian community, *La Réunion,* which flourished for a time, but has since come to nothing. Considérant returned to France in 1869. See COMMUNISM.

CONSIDERA'TION, in Law: the thing given, or done, or the forbearing or suffering something as recompense to another, for doing, giving, forbearing, or suffering. An obligation incurred without consideration is termed voluntary. Consideration is of the essence of a contract. It is *express* when stated in words, orally, or written in the contract; and *implied* where it is enforced by law without requiring that it should have been stated; *valuable* when the benefit conferred on the promisor or the detriment sustained through its existence by the promisee is of a property nature and capable of being estimated; *equitable* or *moral* when it involves only the performance by free will of an obligation which was once enforcible, but is so no longer; *good* where neither value nor obligation underlies the inducement to the transaction, as when it is founded on kinship or on natural affection; *illegal* when it involves the doing of something prohibited by law; and *impossible* when it cannot by reason of its inherent difficulty be performed. In time of fulfilment, a consideration is *executed* when performed before the promise founded upon it is made, and in practice is not sufficient to support such promise unless it was the outgrowth of a previous request; *executory* when it is to be performed in the future; and *concurrent* when it and the promise based upon it are simultaneous. In general practice, the most common form of consideration is the good or the valuable; while the executory and concurrent are regarded as sufficient to support all agreements that are not otherwise affected.

CONSIGN, v. *kŏn-sīn'* [F. *consigner*—from L. *consignārĕ*, to put one's seal to—from *con*, together: *signum*, a seal or stamp; It. *consignare*]: *literally*, to send or transfer to another under one's seal; to send, transfer, or deliver into the hands of another with a right to it; to commit or intrust to; to intrust goods to another for sale; to deliver or transfer with the sense of fixedness, as a body to the grave, or a narrative to writing; in *OE.*, to acquiesce in; to submit to. CONSIGN'ING, imp. CONSIGNED', pp. *-sīnd'*: ADJ. transferred to another, with a right of property; intrusted to. CONSIGNATION, n. *kŏn'sī-nā'shŭn*, the act of consigning or delivering up to another. CONSIGN'ER, n. one who. CONSIGN'MENT, in *mercantile law*, the act of sending or committing for safe keeping or management, or for other specified purpose; goods so sent. CONSIGNEE, n. *kŏn'sĭ-nē'*, the person to whom goods are intrusted or sent for sale; a factor. CONSIGNOR, n. *kŏn-sī'nėr* or or *kŏn'sĭ-nŏr'*, he who consigns goods to others for sale, etc.—SYN. of 'consign': to commit; intrust; confide; deliver; resign; give; transfer; assign; appropriate; submit; surrender.

CONSILIENCE, n. *kŏn-sĭl'ĭ-ĕns* [as if from L. *consilĭens*—from *con*, together; *salĭō*, I leap]: the act of leaping together; concurrence; coincidence; the act of arriving at a similar conclusion by independent trains of thought. CONSIL'IENT, a. *-ĭ-ĕnt*, leaping together; concurring.

CONSIST, v. *kŏn-sĭst'* [F. *consister*, to consist of—from L. *consis'tĕrĕ*, to make to stand, to consist of—from *con*, *sistĕrĕ*, to cause to stand: It. *consistere—lit.*, to make to stand together, to agree]: to be composed of; to be made up of; to be contained; to stand or be in. CONSIST'ING, imp. CONSIST'ED, pp. CONSIS'TENT, a. uniform; not contradictory or opposed; agreeing. CONSIS'TENTLY, ad. *-lĭ*. CONSIS'TENCE, n. *-sĭs'tĕns*, or CONSIS'TENCY, n. *-tĕn-sĭ*, degree of density or firmness of a body; agreement or harmony in all parts; conduct in harmony with profession. TO CONSIST WITH, to agree: to be in accordance with. CONSIST OF, to be composed or made up of.—SYN. of 'consistent': compatible; consonant; accordant; firm; hard; solid; harmonious; congruous; uniform.

CONSISTORY, n. *kŏn-sĭs'tĕr-ĭ* [F. *consistoire*, a consistory—from mid. L. *consistōrĭum* (see CONSIST)]: a spiritual court.—Consistory means properly, a place of assembly; but in the later Latinity the word came to signify the particular place where the privy council or cabinet of the Roman emperor met; and after the time of Diocletian and Constantine, the council itself. The assessors of this council were partly the ordinary members (*comites consistoriani*) such as the imperial chancellor and seneschal, partly extraordinary; and their duty was to deliberate on all important affairs of legislation, administration, and justice. The *form* of the imperial consistory passed over into the early Christian Church. The bishops established their consistories; and the highest ecclesiastical court, composed only of cardinals (the College of Cardinals), which meets in the Vatican, under the presidency of the pope, to determine all such matters as the appointment of cardinals, archbishops, bishops, etc., still bears this name, as do also the private councils which the pope can call at his pleasure. The Prot. Church of Germany was induced to perpetuate the consistorial courts principally because the episcopal authority passed into the hands of territorial princes (Ger. *Landesfürsten*) not familiar with ecclesiastical affairs. The first Lutheran consistory was established at Wittenberg, 1542. After 1555, when the peace of Augsburg secured the recognition of the Protestant religion, similar consistories were gradually formed in other places. The Lutheran consistories exercise a supervision and discipline over religion and education, over the clergy and the schoolmasters, and examine the theological candidates on their trials for license and ordination. They have the regulation of divine worship, the administration of church property, and at an earlier period, possessed a certain jurisdiction in regard to marriage.—In the French Protestant churches, the consistory possesses a more restricted jurisdiction than in Germany. It exercises authority over a *circonscription*, *i.e.*, a division of the church containing 6,000 souls, and is composed of all the pastors of the *circonscription*, together with from 6 to 12 lay-elders elected by a certain number of the people. In that portion of the French Protestant

Church which has adopted the Augsburg Confession, the authority of the French civil government is more recognized than in the Reformed Church, for it has a *conistoire général*, composed of delegates, lay and clerical, of the various *circonscriptions*, the pres. of which is a layman nominated by the emperor or by the government.—In England, the word is used to denote the court Christian or spiritual court. Every archbishop and bishop has a consistorial court, held either in his cathedral or other convenient place, before his chancellor or commissary, for ecclesiastical causes. In Scotland, the consistorial courts have lapsed into the commissary courts: see COMMISSARY. In the United States, in the 'Reformed' (Dutch or German Presbyterian denominations, the consistory is the board or body of the officials in each local church, corresponding to *session* in the churches termed 'Presbyterian.' CON'SISTO'RIAL, a. *-tō'rĭ-ăl*, pertaining to. CON'SISTO'RIAN, a. *-tō'rĭ-ăn*, relating to an order of Presbyterian assemblies.

CONSOLA'TO DEL MA'RÉ: see MERCANTILE LAW.

CONSOLE, v. *kŏn-sōl'* [F. *consoler*—from L. *consōlārī*, to comfort greatly—from *con*, *solārī*, to comfort: It. *consolare*]: to comfort; to cheer the mind in distress or depression; to soothe. CONSO'LING, imp.: ADJ. adapted to console or comfort. CONSOLED', pp. *-sōld'*. CONSO'LER, n. *-lėr*, one who or that which. CONSO'LABLE, a. *-lā-bl* [F.—L.]: that may be comforted. CON'SOLA'TION, n. *-lā'shŭn* [F.—L.]: the act of comforting, cheering, or soothing the mind; that which comforts; the cause of comfort; refreshment of mind or spirits. CONSOL'ATORY, a. *-sŏl'ă-tėr-ĭ*, tending to soothe or impart comfort.—SYN. of 'console': to cheer; animate; encourage; enliven; exhilarate; comfort; solace; soothe; sustain; support;—of 'consolation': comfort; solace; alleviation.

CONSOLE, n. *kŏn'sōl* [F. *console*, a bracket, a console: comp. L. *con*, *solĭdus*, solid]: in *arch.*, a projection resembling a bracket, frequently in the form of the letter S, used to support cornices, or for placing busts, vases, or figures on. Consoles were often richly ornamented in the under part. The illustration, from Parker's *Glossary*, which is from the palace of Diocletian at Spalatro, belongs to the debased Roman style, and exhibits the zigzag or chevron decoration, which passed from that style into the Romanic architecture of the continent, and into the Saxon and Norman of England: see BRACKET: CANTILEVER. Console is the name applied also to an ornament, as on the keystone of an arch: also to a small fancy side-table.

CONSOLIDATE, v. *kŏn-sŏl'ĭ-dāt* [L. *consolĭdātus*, made very solid—from *con*, *solĭdus*, solid: It. *consolidare:* F. *consolider*]: to form into a solid and compact mass; to make dense and firm; to unite or combine into one; to bring together separate parts, as of a broken bone, to grow firm and hard. CONSOL'IDA'TING, imp. CONSOL'IDA'TED, pp.: ADJ. united or combined into one. CONSOL'IDA'TION, n. *-dā'shŭn* [F.—L.]: the act of making firm or solid; the act

of uniting two or more parts or things into one. CONSOL'IDANT, n. *-dănt*, a medicine that unites the parts of wounded flesh and heals: ADJ. having the quality of uniting wounds or forming new flesh. CONSOL'IDA'TIVE, a. *-dā'tĭv*, having the quality of healing or rendering compact. CONSOLIDATED FUND, the public money, consisting of the produce of the customs, excise, stamps, and other taxes, and constituting almost the whole public income of the United Kingdom, which is pledged for the payment of the interest of the national debt.—SYN. of 'consolidate': to combine; unite; condense; compress; harden; compact.

CONSOLIDA'TION ACTS: acts in the Brit. parliament, combining into one act, the provisions in various acts having reference to one kind of undertaking.

CONSOLS, n. plu. *kŏn'sŏlz* or *kŏn-sŏlz'* [contr. from *consolidate*]: consolidated annuities, being most of the large sums of money borrowed by the British nation at various times on different rates of interest, *consolidated* or brought together into one scheme, bearing the same rate of interest, 3 per cent., for which an act was passed in 1757. In the act an average was struck of the value of the different stock and the consolidated fund is kept on account in the Bank of England. The total public debts of the nation are called *stocks:* see DEBT, NATIONAL.

CONSOMMÉ, n. *kŏng'sŏm-mā'* [F. gravy, soup]: a strong broth made from different kinds of meat, used as a soup or a sauce.

CONSONANCE AND DISSONANCE: consonance and dissonance refer to the relative agreement or disagreement of a combination of simultaneous tones: see CHORD; DISCORD; HARMONY. Three stages are usually distinguished: perfect consonance, imperfect consonance, and dissonance, although there is no sharp line of demarcation between them. Consonance is usually pleasant and dissonance unpleasant, but this is largely a matter of taste and mode of use. Consonance gives a feeling of rest and finality while dissonance gives rise to unrest and must always be resolved before the close of a movement.

The degree of agreement or disagreement varies with the complexity of the ratio which denotes the Interval (q.v.) or the relation of the vibration frequencies of the combining tones. Thus, the octave, 1:2, and the fifth, 2:3, are perfect consonances; the major third, 4:5, the minor third, 5:6, and the minor sixth, 5:8, are imperfect consonances; combinations with more complex ratios, are considered dissonant. There is great disagreement among musicians on the nature and limits of these demarcations.

Consonance and dissonance have been explained: (1) by an unconscious apprehension of simple and complex vibration ratios and a conscious satisfaction and dissatisfaction with them (Lipps); (2) by the presence or absence of beats (q.v.) (Helmholtz); (3) by degree of direct tone relationship, *e.g.*, identity of certain overtones (Wundt); (4)

by degree of fusion of constituent tones (Stumpf, Kuelpe). *Dict. of Phil. and Psych.* (Baldwin).

CONSONANT, a. *kŏn'sō-nănt* [L. *consŏnans* or *consŏnan'tem*, sounding together or at the same time, also a consonant—from *con*, *sŏnō*, I sound: It. *consonante:* F. *consonnant*]: agreeing; according; consisting; suitable: N. a letter that cannot be sounded, or but imperfectly, without the aid of a vowel: see LETTERS. CON'SONANTLY, ad. *-lĭ*. CON'SONANCE, n. *-năns*, and CON'SONANCY, n. *-năn-sĭ*, accord or agreement in sounds; agreement; consistency. CON'SONANTS, n. plu. those letters of the alphabet that cannot be sounded, or but imperfectly, without the aid of the letters a, e, i, o, u, sometimes w, y, called vowels. CON'SONOUS, a. *-nŭs*, agreeing in sound. CON'SONAN'TAL, a. *-năn'tăl*, pertaining to a consonant; having the nature of consonants. CONSONIFICA'TION, n. *-nĭ-fĭ-kā'shŭn* [L. *facĭō*, I make]: the act of changing a vowel into a consonant, as the L. *i* into the F. and Eng. *j*.—SYN. of 'consonancy': agreement; harmony; accord; consistency; unison; congruity; agreeableness; suitableness;—of 'consonant, a.': consistent; compatible; accordant.

CON'SORT' n. *kŏn'sŏrt* [F. *consort*, an associate, a partner—from L. *consortem*, having an equal share with another, a partner—from *con*, *sors*, lot, condition: It. *consorte*]: a companion or partner; a wife or husband—applied to those in exalted station; union; one ship keeping company with another: V. *kŏn-sŏrt'*, to associate; to keep company with. CONSORT'ING, imp. CONSORT'ED, pp. CON'SORTSHIP, n. state of union; fellowship.

CON'SORT, in English Constitutional Law: the husband or wife of the reigning sovereign, viewed not in a private but in a public capacity, as participating to a certain limited extent in the prerogatives of sovereignty. The extent of these prerogatives in the case of a queen consort are stated by Blackstone. She is, he says, a public person, exempt and distinct from the king, and 'not, like other married women, so closely connected, as to have lost all legal or separate existence so long as the marriage continues.' For this, Sir Edward Coke gives the curious reason, that 'the wisdom of the common law would not have the king (whose continual care and study is for the public, and *circa ardua regni*) to be troubled and disquieted on account of his wife's domestic affairs.' In addition to this peculiarity in her domestic position, the queen-consort enjoys several exemptions and minute prerogatives. She pays no toll, and is not liable to amercement in any court. But where no such exemption is expressly recognized by law in favor of the royal consort, she is on a footing of equality with other subjects, and the privileges which the title conveys are chiefly those of precedence, and belong to court etiquette. Until 1857, the husband of Queen Victoria possessed no distinctive English title, and no place in court ceremonial except such as was conceded to him by courtesy. In that year, the title of Prince Consort was conferred upon him by letters-patent.

CONSPECTUITY, n. *kŏn'spĕk-tū'ĭ-tĭ* [L. *conspectus*, a. sight, a view]: in *OE.*, sight; the organ of sight; the eye.

CONSPECTUS, n. *kŏn-spĕk'tŭs* [L.]: a general sketch or outline of a subject; an abstract; a synopsis; a prospectus.

CONSPICUOUS, a. *kŏn-spĭk'ū-ŭs* [L. *conspicŭŭs*, that is or comes in view, visible—from *con*, *spĕcĭō*, I see: It. *conspicuo*]: easy to be seen by the eye; obvious to the mind; prominent; eminent; distinguished. CONSPIC'UOUSLY, ad. *-ū-ŭs-lĭ*. CONSPIC'UOUSNESS, n. openness to view; extensively known and distinguished.—SYN. of 'conspicuous': famous; illustrious; prominent; celebrated; eminent; distinguished; manifest; apparent; clear; visible; plain; obvious; evident.

CONSPIR'ACY: combination of two or more persons for accomplishment of some unlawful purpose, or of a lawful purpose by unlawful means. The offense is complete at the moment when the unlawful combination is formed; and the conspirators may be prosecuted and convicted of crime even though they take no further step.

In the United States, under the federal laws, conspiracy means a concerting of two or more persons to perform certain enumerated acts hostile to the authority of the federal govt., in contempt of its courts and its officials, in fraud of its treasury, etc.; also, to cast away any vessel with intent to defraud underwriters.

Between the several states of the Union, the laws regarding conspiracy differ very widely. In N. C., it is conspiracy for two or more persons to combine to intoxicate an individual for the purpose of cheating him at cards; in S. C., to combine to injure a person because of political opinions; in Ill., to agree to obtain goods under false pretenses; in Md., to combine to defraud a third person by means of an act that would not amount to an indictable cheat were it to be done by an individual. In Penn., conspiracy is not matter for criminal prosecution unless some act be done to effectuate the purpose of the conspirators. In all the states, besides the provision made for the criminal prosecution of those guilty of conspiracy, the laws provide a civil remedy also—to wit, an action for damages on account of the injury done to the victim of the unlawful confederacy.

A very important aspect of the law of conspiracy in recent times is its relation to the frequent contentions between workmen and employers. In this respect, the ancient rigor of the common law and of the statutes has been much relaxed, and the tendency still is toward a thorough revision of existing codes and bodies of law, in favor more particularly of the workmen. Yet it is still the law of Mass. that a combination of workmen to raise their wages, and to enforce by overt acts a schedule of prices of labor, is a criminal conspiracy. N. Y. and Penn. were the first among the states to redress by law the grievances of the workmen. In N. Y., by the act of 1870, la-

bor-unions are declared lawful, as is also any peaceful combination in a trade or calling to increase or maintain a scale of wages; but if workmen combine to raise their wages by conspiring to compel other workmen to conform to rules established by the conspirators for the purpose of regulating the price of labor, they are indictable for conspiracy. The Penn. act of 1872 in like manner declares trades-unions lawful; it provides that laborers, etc., as individuals or as members of a society, may lawfully refuse to work for any employer when, in their opinion, the wages are insufficient, or the treatment of such workmen by their employers is brutal or offensive, or when the continued labor of such workmen would be 'contrary to the rules, regulations, or by-laws of any club,' etc., to which the workmen may belong.

The decisions of Judges Ricks and Taft, in the cases of seven locomotive engineers of the Lake Shore r.r. and of Peter M. Arthur, grand chief of the Brotherhood of Locomotive Engineers, rendered in the circuit court of the United States for the n. dist. of O., 1893, Apr. 3, have an important bearing on the law of conspiracy. Judge Ricks held that 'an act when done by an individual in the exercise of a right may be lawful, but when done by a number, conspiring to injure or improperly influence another'—as by railroad employees to injure a company against which a boycott has been declared—'may be unlawful. One or more employees,' Judge Ricks continues, 'may lawfully quit their employer's service at will, but a combination of a number of them to do so for the purpose of injuring the public and oppressing employers by unjustly subjecting them to the power of the confederates for extortion or for mischief is criminal.' Judge Taft's decision made perpetual an injunction restraining Chief Arthur from compelling the members of the Brotherhood of Locomotive Engineers to obey rule 12 of the Brotherhood's constitution, which under certain conditions requires the members employed on one railroad line to refuse to 'handle the property' belonging to another line against which the Brotherhood has a grievance. The existence and enforcement of this rule is declared by Judge Taft 'a criminal conspiracy against the laws of the country.' About the same time U. S. Judge Billings at New Orleans issued an injunction against the longshoremen and other unions of common laborers in that city, forbidding their combination to prevent the despatch of freight by rail or steamboat by refraining from work and by using moral or physical force to hinder their fellow-unionists or non-unionists who might be willing to work. See BOYCOTTING: TRADE-UNIONS.

CONSPIRACY BILL: bill introduced into parliament by Lord Palmerston, in consequence of an attempt to assassinate the Emperor and Empress of the French while going to the opera on the evening of 1858, Jan. 14, by the Italian refugee Orsini and others, by means of explosive

shells partly manufactured in England. The bill declared conspiracy to murder, which the law of England had hitherto treated as a misdemeanor, to be a felony, punishable with penal servitude, and applying that provision to all persons whether English or foreign, and to all conspiracies to murder wherever intended. In place of being regarded merely as a piece of law reform, the conspiracy bill obtained a political character partly from a dispatch from the French minister, Count Walewski, demanding some such change in British law, and partly from expressions in certain addresses which were presented to the emperor by the French army, and published in the government organ, the *Moniteur*, which were regarded as insulting to England. The ministry were accused of truckling to France; and though on the motion for leave to bring in the bill they had a majority of 200 (299 against 99), an amendment by Mr. M. Gibson on the second reading, virtually amounting to a vote of censure, was carried by a majority of 19 against them (234 to 215).

CONSPIRE, v. *kŏn-spīr′* [F. con*spirer*—from L. *conspīrārĕ*, to blow together—from *con*, *spīrārĕ*, to breathe: It. *conspirare*]: to band together to commit crime; to plot; to hatch treason; to combine for an unlawful purpose; to concur to one end. CONSPI′RING, imp. CONSPIRED, pp. *-spīrd*. CONSPIR′ACY, n. *-spĭr′ă-sĭ*, a combination of two or more persons for an unlawful or evil purpose; an unlawful confederacy to prejudice a third person; a plot. CONSPIR′ATOR, n. *-tėr*, one who engages in a conspiracy. CONSPI′RINGLY, ad. *-spī′rĭng-lĭ*. CONSPIRANT, a. *kŏn-spī′rănt*, in *OE.*, engaged in a conspiracy or plot—SYN. of 'conspiracy': plot; cabal; combination; faction;—of 'conspire': to concur; combine; unite; league; confederate; plan; agree.

CONSTABLE, n. *kŭn′stă-bl* [OF. *conestable;* It. *conestabile*, a constable—from mid. L. *conestăbŭlus*, the commander of the forces—from L. *comēs-stabŭlī*, the attendant or count of the stable—hence master of the horse, whose duty it was to preserve public order, and in 13th c. the commander of the forces; though Coke, Selden, and others, make the derivation from *koning-stapel*, staff and stay of the king]: anciently in Britain, a high officer of the crown called the *Lord High Constable;* in modern times, a peace-officer; a policeman, generally; one who carries arms. CON STABLESHIP, n. CONSTABLERY, n. *kŭn′stă-blėr′ĭ*, the body or jurisdiction of constables. CON′STABLEWICK, n. *-wĭk*, the district to which a constable is limited. CONSTAB′ULARY, a. *-stăb′ū-lėr-ĭ*, pertaining to or consisting of constables: N. the body of constables in a district. HIGH CONSTABLES, a standing body of citizens invested with special powers for preserving order. SPECIAL CONSTABLES, a body of citizens appointed to act on special emergencies. *Note.*—In the United States the term *Constable* is generally applied only to the policemen of unincorporated villages and towns; otherwise such officers are termed *police.*

BATTLE BETWEEN THE CONSTITUTION AND THE GUERRIERE.

CON'STABLE: anciently in France and in England, a military personage of the very highest rank. The constable of France rose gradually in importance from the comparatively modest position of an officer of the household, till at last he became, *ex officio*, the commander-in-chief of the army in the absence of the monarch, the highest judge in military offenses and all in questions of chivalry and honor, and the supreme regulator and arbitrator in all matters connected with tilts, tournaments, and all martial displays. The office of constable is traced back by Anselme to Alberic, who held it in 1060; but the first constable of France who appeared at the head of an army was Mathew, the second Seigneur de Montmorency. The office was suppressed by Louis XIII. 1626. Among the offices of the ancient monarchy which were restored by Napoleon for mere purposes of state, that of constable was one. His brother, Prince Louis Napoleon, afterward king of Holland, was created Grand Constable, the Vice-constable being Marshal Berthier. The office was again abolished, on the restoration of the Bourbons, and has not been re-established. But beside the constable of France, almost all the great vassals of the crown had constables who filled analogous offices at their minor courts. There were constables of Burgundy, of Champagne, and of Normandy; the latter of whom may be regarded as the progenitor of the constable of England.

Shortly after the Conquest, a Lord High Constable of England appears, with powers and privileges closely corresponding to those of the constable of France (13 Rich. II. st. 1. c. 2). For his position as judge of the court of chivalry, in conjunction with the Earl Mareschal, and the limitation of his power, which followed on the statute 13 Rich. II. c. 2, see CHIVALRY, COURT OF. The office was abolished by Henry VIII. on the attainder of Edward Stafford, Duke of Buckingham; and a Lord High Constable is now appointed only on the occurrence of great state ceremonies, *e.g.*, a coronation. The High Constable of Scotland was an officer very similar to the constable of France and England. After the Rebellion, the offices of the inferior constables in Scotland dependent on the High Constable, such as the constable of the Castle (q.v.), were abolished, but that of the High Constable himself was expressly exempted, and still exists in the noble family of Errol. The privileges attaching to this office are now entirely honorary; but in virtue of it, the Earl of Errol is said to be the first subject in Scotland after the blood-royal; and on the occasion of the visit of King George IV. to Edinburgh, the then earl was allowed to take precedence of the possessors of all other hereditary honors. The present Earl of Errol is the 22d High Constable of Scotland.

CONSTABLE OF A CASTLE, in Britain, was the keeper or governor of a castle belonging to the king or to a great baron. These offices were frequently hereditary; thus there were constables or hereditary-keepers of the TOWER,

and of the castles of Dover, Windsor, etc.—CONSTABLE OF THE HUNDRED, and CONSTABLE OF THE VILL, were the predecessors, the former of the high, and the latter of the petty constables of later times, whose duty is to see to the conservation of the peace. The petty constable has his functions within the limits of the township or parish. —SPECIAL CONSTABLES are persons sworn in by the justices for a limited time or a particular place, to preserve the peace, or to execute warrants on special occasions, a tumult, riot, or felony, when the ordinary officers are judged insufficient. For Brit. county constabulary, see POLICE.

In the United States, the office of high constable has been largely discarded for more than half a century, somewhat similar duties in cities being assigned to a chief of police; though in a few states there is a constable of the commonwealth. Petty constables, or constables, are largely retained, with the duty of making arrests and conserving the public peace.

CONSTABLE, *kŭn'sta-bl*, ARCHIBALD: 1774, Feb. 24—1827, July 21; b. Fifeshire, Scotland: publisher. He was apprenticed to a bookseller; opened a store of his own in Edinburgh when 19 years old; began publishing the *Scots Magazine* and *Farmer's Magazine*, 1801; the *Edinburgh Review* 1802; the *Edinburgh Medical and Surgical Journal* 1803; and Sir Walter Scott's works, with the *Lay of the Last Minstrel*, 1805. He became a bankrupt 1825. He published the *Edinburgh Review*, Scott's works, and those of Dugald Stewart and other leaders in Scottish literature till his failure, in which his friend Walter Scott also was heavily involved. He had purchased and enlarged the *Encyclopædia Britannica*, and had been running *Constable's Miscellany* but a few months when disaster overtook him, caused as much by his generosity as by the business revulsion of that year.

CONSTABLE, *kŭn'sta-bl*, JOHN: 1776-1837; b. Suffolk, Eng.: landscape painter. His early predilection for art attracted the interest of Sir Charles Beaumont, who enabled him to enter the Royal Acad. 1799, of which he became an academician 1829. His chief works are *The White Horse*, (1819); *The Corn-Field* (1826); and *The Valley Farm* (1835). His paintings were noted for simplicity and fidelity to nature.

CONSTANCE, *kon'stans* or *kon-stânts'*, or KOSTNITZ (anc. *Constantia*): city of Baden, formerly a free imperial city; on the s. shore of the Lake of Constance, where the Rhine connects the upper and lower lakes. Constance is one of the most ancient towns in Germany, but it is much decayed. Its cathedral was erected in the 11th century. Constance is notable in history for the ecclesiastical council, 1414–18, whose object was to put an end to the disorders in the popedom and in the election of popes, and to prevent the spread of the doctrines of Huss. There assembled, with the Emperor Sigismund and Pope John XXIII., 26 princes, 140 counts, more than 20 cardinals,

7 patriarchs, 20 archbishops, 91 bishops, 600 prelates and doctors, and about 4,000 priests. The three rival popes, John XXIII., Gregory XII., and Benedict XIII., were deposed, and Martin V. was elected. Huss and Jerome of Prague were condemned and burned. The emperor was disappointed in his hope of a thorough ecclesiastical reform, and the Council of Basel was afterward called to carry on the work which the Council of Constance had failed to accomplish. The hall in which the council met is now the market-hall of Constance. Constance has manufactures of silk, cotton, and watches, active fisheries, and the cultivation of vineyards and gardens employs many of the people. The decline of the place is shown in the decrease of the pop. from 40,000, to (1900) 21,445.

CONSTANCE, Lake (called by the Germans *Bodensee* or *Bodmansee*, from the old castle of Bodman—the *Lacus Brigantinus* of the Romans): on the n. side of the Alps of Switzerland, at a meeting-point of the five territories—Baden, Würtemburg, Bavaria, the Tyrol, and Switzerland. It has an elevation variously estimated at 1,250–1,385 ft. above the sea. Lake Constance is traversed by the Rhine from e. to w.; its greatest length is about 44 m., utmost breadth 9 m., depth 964 ft. It is divided into the upper and lower lakes, the latter extending from Constance to Stein. Anciently, the lake was more extensive toward the s. than now. In the 4th c., it is said to have extended as far as Rheineck, now some miles from the shore. The shores are formed by hilly lands, with low tracts at the mouths of the Rhine and smaller rivers. Cornfields, vineyards, pastures, orchards, and wooded declivities, with here and there the ruins of old castles interspersed, surround the lake. The water has a dark-green hue, often rises suddenly 10 or 12 ft. during a thaw, and rolls in high waves during the prevalence of a strong s., n.w., or e. wind. Without visible cause, it sometimes rises and falls to a considerable degree. Since 1824, steam-navigation has added to the facilities of commerce across the lake, and its commercial importance has been greatly increased by the connection of the chief towns on its shores with the railway system of s. Germany and Switzerland. It is frequented by numerous aquatic birds, and contains a great variety and abundance of fish, including salmon, salmon-trout, pike, and carp. Its navigation by sailing vessels is rendered dangerous by sudden and violent squalls.

CONSTANS, Jean Antoine Ernest, *zhŏn âñ-twân ĕr-nā kôñ-stâñ*, French politician: b. Beziers 1833, May 3. He was professor of law at Toulouse, was a republican member of the Chamber of Deputies in 1876; minister of the interior 1880-2; minister to China 1885-7, and governor-general of Indo-China 1887-8. He was elected senator in 1889, and as minister of the interior 1889-92, actively contributed to the overthrow of Boulangerism.

CONSTANT, a. *kŏn'stănt* [F. *constant*—from L. *constan'tem*, standing firm—from *con*, *stans*, standing: It. *cos-*

tante—lit., standing firm]: fixed; unchanged; steadfast; unchangeable, as in mind, purpose, affection, or principle; determined; invariably the same; in *OE.*, consistent; steady: N. that which remains unchanged. Con'stantly, ad. *-lĭ.* Con'stancy, n. *-stăn-sĭ*, fixedness; unshaken determination; lasting affection.—Syn. of 'constant, a.': fixed; permanent; invariable; perpetual; firm; determined; unshaken; resolute; continual; immutable; unalterable; unchanging; steadfast; persevering; steady;—of 'constancy': stability; fixedness; firmness; steadiness; resolution; fidelity.

CONSTANT, Jean Joseph Benjamin, *zhŏnzhŏ-zĕf' bŏn-zhâ-măn* French portrait painter: b. Paris 1845, June 10; d. there 1902, May 26. He studied in the École des Beaux Arts and under Cabanel. He exhibited with growing distinction, at successive salons, from that of 1860, with his *Hamlet*, his *Samson* in 1872, his *Scenes from Algiers* in 1873-4, his great historical painting of *Mohammed II.* in 1453 in the Exposition of 1878, and in 1885 a large Oriental subject, as melodramatic as possible, with splendid rendering of the human figure and strong effects of color. Other noted canvases by him are *Le Roi du Désert*, *La Tigre Favori;* and portraits of Mrs. Walters; Madame Calvé; Queen Victoria, exhibited in the Salon of 1901; Queen Alexandra; and De Blowitz. He was the fashionable artist of his time in Paris and London. His noble picture of *Justinian* is in the Metropolitan Art Museum, New York. He was decorated with the Legion of Honor in 1878.

CONSTANT ERROR: see Errors of Observation; Normal Illusions; Psychophysic Methods. The difference between the true magnitude and the average of a number of measurements. In psychology, the normal illusions are examples of constant errors. Thus, if a good observer be asked to draw a vertical line which shall look equal in length to a horizontal line, he will make the vertical line from five to eight per cent. too short. The constant error in that case is called the illusion of the vertical. The personal equation in the timing of star transits is a famous illustration from astronomy. The degree of certainty of the constant error is expressed in terms of its mean variation, or variable error (q.v.).

CONSTANT DE REBEQUE, *kōng-stŏng' dĕh rĕh-bĕk'*, Henri Benjamin: 1767, Oct. 25—1830, Dec.; b. Lausanne; French political writer and orator. Educated in a German college, he afterward spent some time at Edinburgh Univ., and here he is supposed to have imbibed those ideas of political freedom which guided him through life. In 1796, he published in Paris a pamphlet on the government then existing, which brought him into note; and three years later, he was placed on the 'Tribunat' by Napoleon, who, however, two years later, dismissed and banished him for the spirit which he displayed in resisting the First Consul's encroachments on liberty. During his banishment, he travelled for some time with Madame de Staël, and afterward settled in Ger-

many. In 1813, he published his celebrated pamphlet, *On the Spirit of Conquest and Usurpation*. In 1814, he returned to Paris, where he wrote several pamphlets in favor of constitutional liberty, which he maintained was enjoyed under Louis XVIII. Napoleon's government he described as a 'government of mamelukes,' and the emperor himself as 'a Genghis Khan.' Yet during the Hundred Days he became a councillor of state, and assisted in framing the *Acte Additionnel*. In 1819, he was elected a deputy, became ultimately leader of the opposition, and in this capacity gained unbounded popularity. C. de R. was a true patriot. He loved liberty better than monarchies or mobs, and therefore, while he opposed the despotic measures of the government of Charles X., he deplored the revolution of 1830, July. As a public speaker, C. de R. was in his day the clearest and most persuasive advocate of constitutional principles in France. As a political writer, he was even more effective than as speaker. Among his works were *Discours Prononcés à la Chambre des Députés* (2 vols. Par. 1828), the *Cours de Politique Constitutionnelle* (4 vols. Par. 1817–20, 2d ed. 1833), in which are collected his minor works on representative government. Among his most ambitious works are *Mémoires sur les Cent Jours* (Par. 1820), *De la Religion considérée dans sa Source, ses Formes, et ses Développements* (5 vols. Par. 1824–31), to which posthumous work his *Du Polythéisme Romain, considéré dans ses Rapports avec la Philosophie Grecque et la Religion Chrétienne*, forms a kind of supplement.

CONSTANTIA, *kŏn-stăn'she-a:* district of Cape Colony, in s. Africa, on the e. and n.e. slopes of Table Mountain range, abt. 12 m. from Cape Town. C. consists of only two estates, Great Constantia and Little Constantia, long famed for the quality of the wines produced on them. Many attempts have been made in other parts of Cape Colony, as also in France and the south of Europe, to produce a wine similar in quality and flavor to the C., but all have failed; and it is now known that not only to the quality of the C. grape, but also to the character of the soil, as well as to the peculiarly genial exposure of the district, the characteristic excellence of the C. (proper) wines is traceable. The soil of the estates is rich in alkalies to an extent perceptible in the grape itself, and the vineyards have a very equable exposure, being sheltered from all sudden changes of temperature by spurs of the great granite mountain. The grapes under this shelter ripen very uniformly, so that the earthy taste, which spoils the character of other Cape wines, and which is produced by using unpicked grapes of different degrees of ripeness in the same bunch, does not attach to the C. wines.

Although the attempts made on other farms in the colony to produce wine similar to that of C., have failed so far as the peculiar flavor and lusciousness of real C. are concerned, yet they have led of late to great improvements in several of the s. African wines, e.g., the improved 'Pontac,' and other wines of Wynberg. Statistics of the wine trade of this settlement show, however, that only a small quan-

tity of genuine wine finds its way into the market—much of that which passes under the name being similar but inferior Cape wines. The produce of the C. vineyards sells even in the colony at not less than 6s per bottle.

CONSTANTINA, *kŏn-stân-tē'nâ:* town of Spain, in Andalusia, in a mountainous district, about 40 m n.n.e of Seville, to which city it supplies much fruit and ice. It has manufactures of leather and soap, distilleries, flour-mills, etc. Pop. 10,998.

CONSTANTINE, *kŏn-stân-tēn':* capital of province of same name (eastern prov. of Algeria: area 73,929 sq. m.; pop. 1,990,992); on a hill with flat summit, three sides of which are washed by the Rummel flowing through a deep and narrow ravine, and the fourth side is connected by a natural mound with the surrounding mountains. Lat. 36° 22′ n., long. 6° 37′ e. It is 830 ft. above the river, and 2,162 ft. above the sea. It is surrounded by walls constructed by the Arabs out of Roman sculptured stones, and a fine old Roman bridge spans the ravine on one side. The streets, as in the other towns of Barbary, are very narrow and dirty, and the houses mean. An old church in the Byzantine style is included in the citadel. C. was anciently one of the most important towns of Numidia, called *Carta* by the Carthaginians, *Cirta* by the Romans, and was long a royal residence. It was destroyed in the wars of Maxentius against Alexander about A.D. 311, but was soon rebuilt by Constantine the Great, from whom it derives its present name. It was a flourishing town in the 12th century. Subsequently, it shared in general the fortunes of Algeria (q.v.). C. has manufactures of woolen cloths, saddlery, and other articles of leather. Pop. (1886) 36,536, of whom some 9,789 are French, and 5,780 Jews; (1901) 41,138.

CONSTANTINE I., *kŏn'stan-tīn*, FLAVIUS VALERIUS AURELIUS, surnamed 'the Great,' Roman Emperor: 272 (or 274)—337, July 22; b. Naissus, in Mœsia; eldest son of Constantius Chlorus. He distinguished himself by his military talents first under Diocletian, in that monarch's famous Egyptian expedition 296; subsequently he served under Galerius in the Persian war. In 305, the two emperors, Diocletian and Maximian, abdicated, and were succeeded by Constantius Chlorus and Galerius. Galerius, who could not endure the brilliant and energetic genius of C., took every means of exposing him to danger, and it is believed that this was the period when he acquired that mixture of reserve, cunning, and wisdom, conspicuous in his after-years. At last C. fled to his father, who ruled in the West, and joined him at Boulogne just as he was setting out on an expedition against the Picts in North Britain. Constantius died at York 306, July 25, having proclaimed his son C. his successor. The latter now wrote a conciliatory letter to Galerius, and requested to be acknowledged as Augustus. Galerius did not dare to quarrel with C., yet he granted him the title of Cæsar only. Political complications now increased, and in a short time no less than six emperors were 'in the field'—viz., Galerius,

Licinius, and Maximin in the East, and Maximian, Maxentius his son, and Constantine in the West, 308. Maxentius having quarrelled with his father, forced him to flee from Rome; he took refuge with C., but was ungrateful enough to plot the destruction of his benefactor. This being discovered, he fled to Marseille, the inhabitants of which city gave him up to C., who put him to death 309. Maxentius professed great anger at the death of his father, and assembled a large army, with which he threatened Gaul. Crossing the Alps by Mont Cénis, C. thrice defeated Maxentius—first near Turin, then under the walls of Verona, and finally in the vicinity of Rome 312, Oct. 28, Maxentius himself in the last of these engagements being drowned in an attempt to escape across the Tiber. C. now entered Rome, disbanded the Prætorians, and adopted other judicious measures for allaying the public excitement. He was also honored with the title of *Pontifex Maximus*, or Supreme Dignitary of the Pagan Hierarchy.

C. was now sole emperor of the West. Similarly, by the death of Galerius, 311, and of Maximin, 313, Licinius became sole emperor of the East. In 314, a war broke out between the two rulers, in which Licinius had the worst, and was fain to conclude a peace by the cession of Illyricum, Pannonia, and Greece. C. gave Licinius his sister Constantina in marriage, and for the next nine years devoted himself vigorously to the correction of abuses in the administration of the laws, to strengthening the frontiers of his empire, and to chastising the barbarians, who learned to fear and respect his power. In 323, he renewed the war with Licinius, whom he defeated, and ultimately put to death. C. was now at the summit of his ambition, the sole governor of the Roman world. He chose Byzantium for his capital, and in 330 solemnly inaugurated it as the seat of government, under the name of Constantinople, or City of Constantine. In 324, he committed a deed that has thrown a dark shade over his memory. He had a gallant and accomplished son, named Crispus, who was exceedingly popular; and him, with Constantina and others, he put to death on a charge of treason. Niebuhr shows that it was not unlikely that Crispus cherished ambitious designs. Next year occurred the great Council of Nice. C. sided with the orthodox fathers, probably for very heterodox reasons. As yet he was a pagan; but his sense of justice, and his conviction of the growing importance of the Christians, both as a moral and political element in the life of the empire, had from the very first induced him to protect them. As early as 313 he had everywhere granted them toleration, and since then continued to favor them more and more decidedly. As president of the Nicene Council, he opposed the Arians, on political grounds, as the weaker party; but not being theologically interested in the dissensions, he refrained from active persecution. During the latter years of his life, Christianity became the state-religion, the pagan temples were closed, and sacrifices forbidden. Yet it was only a short time before his death that he would allow himself to be baptized.

The question has been much discussed, whether or not C. was a Christian. The truth seems to be, that he looked upon religion with the eye of a *statesman*, who feels that his first duty is to rule in an orderly and peaceable manner, the nation over which he is set. Had Paganism been still in its prime, and possessed any real political vitality, it is not likely that a man of C.'s secular temperament would have troubled himself in regard to the new faith; but when he found that the latter was making rapid progress in spite of the fiercest persecution, he must have felt it wisest, and probably also conceived it *right*, to protect and favor it. But he continued to the last addicted to many pagan superstitions. As an emperor, however, he ranks very high. He was beloved by his people, for whose welfare he seems to have honestly labored. Severe and even sanguinary toward individuals, he was just and moderate toward nations. He conquered every enemy, organized a new and better mode of government for his vast dominions, crushed all conspiracies and revolts, and passed the close of his life in peace.

CONSTANTINE II., Claudius Flavius Julius: Roman emperor; 312–340; eldest son of C. the Great. He was given administrative authority, 335, over Gaul, Spain, and Britain. On the death of his father, two years later, he inherited the sovereignty of these provinces, with a portion of that of Africa, his brother Constans receiving Italy and the rest of Africa. C. invaded his brother's Italian dominions, 340, and was killed in battle. Constans thus became master of all the Western empire.

CONSTANTINE III., Flavis Heraclius: Roman emperor of the East: 612–641. He was son of the emperor Heraclius and Eudoxia, and at the death of his father shared the govt. of the empire with his half-brother three months, when it is supposed he was poisoned by his stepmother.

CONSTANTINE IV., Pogonatus: Roman emperor of the East. He was son of Constans II. whom he succeeded A. D. 668; defended Constantinople with Greek fire against an Arabian fleet several years; forced the Arabs to purchase peace by heavy annual tributes; and called the council at Constantinople which condemned the Monothelites A. D. 680.

CONSTANTINE V., Copronymous: Roman emperor of the East: 719–775; son of Leo III. He succeeded his father A. D. 741; suppressed the insurrection of Artavasdes and made himself master of Constantinople; and called the council which condemned the worship of images A. D. 754.

CONSTANTINE VII., Porphyrogenitus, Roman Emperor of the East: 905–959; b. Constantinople; son of the emperor Leo VI. He was an accomplished and well-meaning prince, but lacking force. On the death of his father, 911, the government was usurped by Romanus Lecapenus, who ruled as emperor till 944, when C. was placed in possession of his rights by popular favor. His virtues endeared him to his people, and he left a number

of literary and scientific works, among them a description of the provinces of the empire, a life of the emperor Basil of Macedonia, a treatise on the government of the empire, and another on the ceremonies of the Byzantine court.

CONSTANTINE XIII., Palæologus, last Emperor of the East; 1394–1453; b. Constantinople. He succeeded his brother, John Palæologus VII., 1448. Threatened by the sultan Mahomet II., he vainly endeavored to obtain aid from Christian Europe. The Turks besieged Constantinople, 1453, with between 250,000 and 300,000 men. A gallant defense was made for 53 days, but the city was taken by storm, May 29, and C. fell in the battle, after showing a heroism which elicited the admiration of the conquerors.

CONSTANTINE, Nicolaewitch, Grand-Duke of Russia: 1827, Sep. 21—1892, Jan. 25: second son of the emperor Nicholas I. and bro. of the emperor Alexander II., and uncle of Alexander III. During the reign of Alexander II., and till 1881, he was grand admiral of the Russian fleet, and held many other high offices and dignities in the army and in the state. During the Crimean war, he commanded the Russian fleet in the Baltic, and directed the defensive preparations which held the English and French armaments in check before Cronstadt. The leader of the old Russian party, he strenuously opposed the concessions made to the western powers. In 1857, however, he visited the courts of England and France, and in 1871 he paid a second visit to England; the year following he visited the U. S. On the outbreak of the Polish insurrection in 1862, C. held the office of viceroy of Poland for three months. In 1865, Jan., he was appointed president of the council of the empire. He was dismissed from his dignities 1881, on suspicion of intriguing with the revolutionary party, and he and his son Nicholas were placed under arrest. He was suddenly afflicted with loss of his reason 1890, while attending the army manœuvres.

CONSTANTINE, Paulovitch, Grand-Duke of Russia; 1779, May 8—1831, June 27; second son of Emperor Paul I. He early showed activity, intellectual ability, and a bravery bordering on foolhardiness, of which he gave remarkable proof at the battle of Austerlitz. After the congress of Vienna, the government of Poland was intrusted to him by his brother, Emperor Alexander. In 1822, Jan., he executed a private deed, by which he resigned his claims to the throne in the event of Alexander's death; and when that event took place, 1825, he adhered to this resignation, though he had meanwhile in his absence been proclaimed emperor in St. Petersburg. The succession thus fell to his younger brother Nicholas. The character of C.'s administration in Poland was not such as to conciliate any class of the people, and a widely ramified conspiracy was formed. The French revolution of 1830 supplied the spark which set all in flame, and C. was compelled to flee for his life, but he returned in command of the army of reserve. He died, however, of cholera at Vitebsk.

CONSTANTINOPLE.

CONSTANTINOPLE, *kŏn-stăn-tĭ-nō'-pl*, called by the Turks *Stamboul* or *Istamboul*, originally called *Byzantium* (q.v.): city, cap. of the Turkish empire. In 330, Emperor Constantine (q.v.) made it the cap. of the Roman empire, and called it, after his own name, Constantinople. From this period dates its importance. It was thenceforth the residence of the Roman, and afterward of the Byzantine emperors, till in 1453 it was taken by the Turks. Since that time, it has been the cap. of Turkey and the principal residence of the sultans. It is in lat. 41° n., and long. 28° 59′ e., on the European side of the Channel of Constantinople, or Thracian Bosporus, near its opening into the Sea of Marmora. A narrow arm of the sea, called the Golden Horn, extends about five m. into the land, and forms a safe and most commodious harbor, with water of sufficient depth to float the largest men of war. C. proper, to which Europeans give the name of Stamboul, to distinguish it from the n. and e. suburbs of C., lies entirely on the s. side of the Golden Horn, and is protected by a wall, built during the time of the Byzantine empire, and partially restored by the Turks. The wall is about 12½ m. in circuit, and is pierced by 28 gates, among which that of Top-Kapussi, formerly that of St. Romanus, has historic interest, as being the one through which the Turks entered when they stormed the city, and where the last of the Palæologi died in the fight. The suburbs of Galata, Pera; and Top-hanêh are on the n. side of the Golden Horn. On the Asiatic side of the Bosporus lie Scutari and Kadiköi (the ancient Chaleedon), and to the n. w. of the city lies the town of Eyub. The city itself is built on hilly ground, and from this circumstance, and its numerous gardens, cypresses, mosques, palaces, minarets, and towers, it presents, especially as seen from the side of the Golden Horn a very splendid appearance. The scenery of the Thracian Bosporus is of almost unrivalled beauty; and the panorama, of which C. forms the principal part, is such as is perhaps nowhere else to be seen in the world. But a nearer approach reveals the characteristics of an Oriental town—narrow, crooked, filthy streets, and miserable houses of wood and clay. Since the Crimean war, however, C. has been wonderfully improved. Great fires—1865, Sept. 6, 7, and 1866, May 3, and 1870, June 5—swept away square miles of old wooden houses on both sides of the Golden Horn. On these spaces, handsome stone houses have been built in the modern European style; but this has not been done with much system, and there are in all directions great gaps, filled with miserable wooden huts or left as waste places. The formation of tramways has, however, tended to connect the improved districts by wider thoroughfares, and to form a general plan, which is gradually giving to C. the appearance of a European city. C. contains many fine buildings, among which are the Seraglio, occupying the position of ancient Byzantium, and measuring about three m. in circumference. The former church of St. Sophia, now a mosque, is a most magnificent structure, in the form of a Greek cross, 269 ft. long, by

MOSQUE OF ST. SOPHIA, CONSTANTINOPLE.

243 broad, and has a flattened dome, greatly admired for its lightness, 180 ft. above the ground. The other important mosques are those of Solyman, Achmed, Sultan Mohammed II., and Eyub. The two obelisks of the ancient hippodrome, called by the Turks the *Atmeidan;* the Castle of the Seven Towers, now in a state of dilapidation; the aqueducts erected by the Emperor Valens; the cistern of Philoxenus, with 424 columns of marble; and the numerous fountains, are among notable objects in C. The covered bazaars of C. are very numerous, and the goods are displayed with wonderful attractiveness. One feature of C. is its vast number of lean and hungry dogs which haunt the streets. The dogs are the common property of the city, and they do a considerable portion of the scavenging. Galata, founded by the Genoese as a republic, in the Byzantine times, is the residence of European merchants and the principal place of trad . It contains many great warehouses, shops, and dwelling houses, bu is, if possible, even more filthy than C. proper. Bridges of boats connect the opposite sides of the Golden Horn. Further on the Bosporus lies Top-hanêh, with the imperial cannon-foundry, a beautiful mosque, and an interesting fountain. On the hill behind Galata and Top-hanêh is situated Pera, the residence of the foreign ambassadors. Two-thirds of Pera were burned to the ground by the fire of 1870, June 5, when 3,000 houses were destroyed, including that of the English ambassador, and 40,000 persons were left without shelter. Before the fire, Pera had a European population of 70,000, reduced by the catastrophe to more than one-half. Pera is not being rebuilt on its old site, but new streets are spreading around it and Galata. In 1875, Pera was connected with C. by an underground railway, 672 yards long, which is reckoned to convey 30,000 passengers daily.

The mosques of C. are more than 300 in number. There are several Greek churches, under a patriarch with 12 synodal bishops. The patriarch is not only the spiritual. but in part also the temporal head of the Greek subjects of the Porte. C. is the residence also of an Armenian patriarch, and there are several Rom. Cath. and Prot. churches. There are in connection with the mosques about 300 *medresses*, or schools for the ulemas; there are also some 400 *mekteb*, or Turkish elementary schools; and among the educational institutions is a school of medicine conducted by Germans, which has been the means of much good. Among the benevolent institutions are numerous *imarets*, where food is provided for the poor, and hospitals for the sick of several European nations. There are public libraries, both Turkish and Greek, of which that of the Seraglio is particularly rich in the treasures of oriental literature; and there are several Turkish and European printing-presses. The public baths and coffee-houses are exceedingly numerous. Some of the peculiar manufactures of the East are carried on in leather, carpets, weapons, etc. But all the manufactures of Western Europe abound in its markets. The trade of C. has, since the Crimean war, been steadily increasing, but is far less ex-

tensive than might be expected from its population and situation. The burden of the vessels entering and of those clearing the port is estimated at about four millions of tons. The trade is chiefly in the hands of Greeks, Italians, Austrians, British, French, and Germans.

The great strategical value of the site of C. has always given it a peculiar military and political importance. Extensive fortifications at some distance on the landward side of C. were undertaken during the Russian war of 1877, and were carried out under the superintendence of an English officer in the Turkish service. These lines extend from Buyuk-Tchekmedgi on the Sea of Marmora to Lake Derkos on the Black Sea, a distance of about 20 m. They run along a range of steep hills, from 200 to 500 ft. in height, looking down on a long and wide bare valley. Eight m. distant across the valley runs the parallel range of the Tchataldja Hills, from 500 to 1500 ft. high.

C. is now connected by railway with the interior of n. Turkey, and the n.w. part of Asia Minor. The Rumelian railway from Stamboul to Bellova, was opened 1873, and will ultimately be connected with the Schumla-Varna line, and with that from Saloniki to Uskub. C. will thus soon have railway communication with a great part of Turkey. —The pop. of C. and its suburbs has been variously estimated. By the *Almanach de Gotha*, 1893, it was said to be 873,565; by the *Statesman's Year-Book*, 1903, it was estimated at 1,125,000.

CONSTANTINOPLE, Councils of: a long series of ecclesiastical synods, general or provincial, during more than a thousand years, A.D., 336–1451. Of those counted as ecumenical by either the Greek or the Latin Church, there were eight. (1) 381, May–June 30, by order of the emperor Theodosius I.; consisting of 150 bishops, beside the adherents of Macedonius, known as semi-Arians: it legalized the emperor's ejectment of the Arians from the eastern churches, condemned also the Eunomians and Eudoxians, declared the bishop of Constantinople next in rank to the bishop of Rome, and both subordinate only to the emperor; reaffirmed the enactments of the Council of Nicc, and added the 'filioque' clause to the confession of faith. (2) 553, May 4–June 2, by order of Justinian I.; consisting of 165 bishops: it sustained Justinian's condemnation of the three distinguished teachers of the Antiochian school, and also condemned Bp. Vigilius of Rome for not having proceeded against them. (3) 680–1, Nov. 7–Sep. 16, known as the sixth ecumenical, consisting of 289 bishops, 3 patriarchs, and 4 Roman legates: it condemned the doctrine of Honorius which held that as there was only one Christ, so he had only one will. (4) 691, by order of Justinian II., to consider matters of discipline—called 'in Trullo,' from the palace in which it was held, and 'quinisextum' because it was supplementary to the 5th and 6th general councils on discipline: it adopted a very large number of canons. (5) 754, Feb. 10–Aug. 8, consisting of 383 bishops: it prohibited the worship of images, but the decree was revoked 786. (6) 869–70, Oct. 5–Feb. 28, known

THE MOSQUE OF SULTAN AHMED, CONSTANTINOPLE.

as the eighth general council: it anathematized heretics, opposed the seven general councils, deposed Photius, and restored Ignatius. (7) 879–80, Nov.–Mar. 13, consisting of 380 bishops, and the Roman legates: it took action concerning Photius—whom it recalled,—the Nicene creed, and the general councils. (8) 1341, June 11, called to legislate on doctrinal points: it condemned Barlaam as a heretic for opposing the Mt. Athos monks in their belief in the possibility of attaining an intuition of divine light and essence by a cessation of corporal life, while yet in the body. Of the above, the 4th, 5th, and 8th are recognized by only the Greek Church as ecumenical.

CONSTELLATION, n. *kŏn'stĕl-lā'shŭn* [F. *constellation*, from L. *constellātiōnem*, a group of stars—from *con*, *stella*, a start]: cluster or group of stars called by a particular name; assemblage of beauties or excellencies.—The stars which stud the firmament have, from a time earlier than authentic records can trace, been formed into artificial groups which have received names borrowed from fancy or fable. These groups are called constellations. Though quite devoid of anything like systematic arrangement, this traditional grouping is found a sufficiently convenient classification, and still remains among astronomers the basis of nomenclature for the stars. Before the invention of almanacs, the risings and settings of the constellations were looked to by husbandmen, shepherds, and seafaring men as the great landmarks of the seasons, and consequently of the weather which each season was expected to bring with it (see Job xxxviii. 31); and it is not surprising if the storms or calm weather that usually accompanied such seasons were connected in the popular imagination with the influence of the stars themselves, or the beings with whom superstition or fable identified them. Thus, the risings and settings of Bootes with the bright star Arcturus, near the time of the equinoxes, portended great tempests: see Virgil's *Georgics*, i. 204. The great heat in July was ascribed to the rising of Canis the Dog, with its bright star Sirius: see CANICULAR DAYS, and HELIACAL RISING. The appearance of the twins, Castor and Pollux, was hailed as the harbinger of fair summer weather.

Almost all nations have, from early times, arranged the stars into constellations; but it is chiefly from the nomenclature of the Greeks and Romans that our own is derived. Eudoxus, contemporary of Plato, about B.C. 370, gave a description of the face of the heavens, containing the names and characters of all the constellations recognized in his time. Though this production is lost, a poetical paraphrase of it, about a century later by Aratus (q.v.), is still extant. This poem describes 12 zodiacal constellations (see ZODIAC), with 20 in the n. hemisphere, and 13 in the southern. The next enumeration occurs in the *Almagest* of Ptolemy, which includes the preceding, with three additional, one n. and two s. constellations, making in all 48. These are the ancient stellar groups. Large accessions have been made to the nomenclature in modern times, in consequence of maritime discovery having brought into

view constellations in the s. hemisphere which never rose upon the world known to the ancient authors. In 1751, Lacaille went to the Cape at the expense of the French govt. for the purpose of making a catalogue of the southern stars, and forming them into constellations. Flattery has contributed toward the stellar nomenclature. At the restoration of Charles II., the evening before his return to London, Sir Charles Scarborough, the court physician, was gazing upon a star in the n. heavens, which shone with greater luminosity than usual, as might be expected from a loyal star on such an occasion. This, in connection with a few others, was formed into Cor Caroli, the Heart of Charles II., by Halley, at the doctor's recommendation. For the chief constellations, see their several titles: ARIES: URSA MAJOR: etc. The fanciful figures from which the constellations are named, are depicted on celestial globes and maps of the heavens.—In the older writers, Constellation signifies the relative positions of the planets at a given moment: see ASPECT.

CONSTERNATION, n. *kŏn'stĕr-nā'shŭn* [F. *consternation*—from L. *consternātĭōnem*, dismay, alarm—from *con*, *sternĕrĕ*, to throw down, to prostrate]: amazement that produces confusion and terror; a state of horror that unfits for action; excessive wonder or surprise.—SYN.: alarm; terror; fear; fright; trepidation; panic; apprehension; horror; amazement; astonishment; surprise; wonder; perturbation.

CONSTIPATE, v. *kŏn'stĭ-pāt* [L. *constipātus*, pressed closely together—from *con*, *stipārĕ*, to stuff or cram: It. *costipare:* F. *constiper*]: to cram into a narrow compass; to thicken; to crowd the intestinal canal; to make costive. CON'STIPATING, imp. CON'STIPATED, pp. CON'STIPA'TION, n. *-pā'shŭn* [F.—L.]: the act of crowding or pressing anything into a smaller compass; stoppage of the bowels; costiveness.—This state of the system is marked by an irregular and sluggish action of the bowels upon their contents, due either to defective secretion of the juices of the intestinal mucous membrane, or to an imperfection of the peristaltic movements (see DIGESTION). Sedentary habits predispose to C., as also does animal food in too great relative amount. The use of brown bread, or of lentils, oatmeal porridge, of green vegetables and salads, or of ripe fruits; the plentiful employment of salt, or of saline drinks, or of many natural mineral waters; and active exercise, especially by walking or riding on horseback in the open air, tend to avert this disease. A favorite remedy with some is the use of a cloth wrung out of cold water, and applied to the abdomen; this, as used at hydropathic establishments, is called an 'abdominal compress,' and is worn under a bandage of macintosh cloth, to keep the moisture from escaping, during the earlier part of the day. But to many persons affected with C., and unable from circumstances to follow out the plan of life here indicated, and to many others in whom the disease does not yield to these means, the use of laxatives, or mild cathartics (q.v.), is al-

most a necessity; and it is satisfactory to know that these remedies, if judiciously selected, and not employed so as to produce over-action, may be taken during many years without any of the bad effects often ascribed to them.

Constipation in the lower animals depends, as in man, on imperfect secretion from, or motion of, the intestinal walls. In the horse, it is usually accompanied by colic (q.v.), and when long continued, leads to enteritis (q.v.). The appropriate remedies are soap and water clysters given every two hours; smart friction and cloths wrung out of hot water applied to the abdomen, with three drachms of aloes, and one of calomel, given in gruel, and repeated in 16 hours, if no effect is produced. Give besides, walking exercise; restrict the amount of dry solid food, but allow plenty of thin gruel or other fluids, which may be rendered more laxative by admixture with treacle or a little salt. Similar treatment is called for in dogs, cats, and pigs. In cattle and sheep, digestion takes place principally in the large and quadrisected stomach; the bowels, accordingly, are little liable to derangement; and C., when occurring in these animals, generally depends upon impaction of dry hard food between the leaves of the maniplies, third stomach, or fardel-bag. The complaint is hence called *fardel-bound.* It results from the eating of tough and indigestible food, such as ripe vetches, rye-grass, or clover; it prevails in dry seasons, and on pastures where the herbage is coarse and the water scarce. It occurs among cattle partaking freely of hedge-cuttings or shoots of trees, hence its synonym of *wood evil.* From continuous cramming and want of exercise, it is frequent in stall feeding animals; while from the drying up of the natural secretions, it accompanies most febrile and inflammatory diseases. The milder cases constitute the ordinary form of indigestion in ruminants, are accompanied by what the cow-man terms *loss of cud,* and usually yield to a dose of salts given with an ounce or two of ginger. In more protracted cases, rumination is suspended, appetite gone, constipation and fever are present. There is a grunt noticeable, especially when the animal is moved, and different from that accompanying chest complaints, by its occurrence at the commencement of *ex*piration. By pressing the closed fist upward and forward beneath the short ribs on the right side, the round, hard, distended stomach may be felt. This state of matters may continue for ten days or a fortnight, when the animal, if unrelieved, becomes nauseated, and sinks. Stupor sometimes precedes death, while in some seasons and localities, most of the bad cases are accompanied by excitement and frenzy. In this as in other respects, the disease closely corresponds with stomach-staggers in the horse.—*Treatment* —Give purgatives in large doses, combining several together, and administering with stimulants in plenty of fluid. For a medium sized ox or cow, use ¾ lb each of common and Epsom salts, ten croton beans, and a drachm of calomel, with three ounces of turpentine; and administer this in half a gallon of water. If no effect is produced in twenty hours, repeat the dose. Withhold all

solid food; encourage the animal to drink gruel, sloppy mashes, treacle, and water; and give exercise, clysters, and occasional hot fermentations to the belly.

CONSTITUENT, a. *kŏn-stĭt′ū-ĕnt* [F. *constituant*, constituent—from L. *constitŭĕns or constitŭen′tem*, putting or placing together—from *con*, *statŭĕns*, setting up: It. *constituente—lit.*, putting or placing together for making a thing]: necessary or essential; elemental: N. an essential or component part; that which constitutes or composes; anyone of the persons represented by a member of a legislative body. CONSTIT′UENCY, n. *-ĕn-sĭ*, the whole body of inhabitants within certain limits, who have a representative in a legislative body. CONSTITUTE, v. *kŏn′stĭ-tūt* [L. *constĭtūtus*, caused to stand together, established—from *con*, *statūĕrĕ*, to set up, to place—*lit.*, to put or place together in order to make a thing what it is]: to set up or establish; to make; to appoint; to empower. CON′STITUTING, imp. CON′STITUTED, pp. CON′STITU′TER, n. one who. CONSTITUTION, n. *kŏn′stĭ-tū′shŭn* [F. *constitution*—from L. *constitūtĭōnem*, constitution, disposition, nature]: the natural frame of body of any human being or any animal; the peculiar temper of the mind, passions, or affections; the peculiar character or structure of anything as of air; the body of *rules* and regulations that prescribe powers and duties for the conduct of a government; a particular law or regulation; in *chem.*, the way in which the atoms are grouped to form the molecule of a body. CON′STITU′TIONAL, a. *-ăl*, inherent in the natural frame of the body or mind, legal; relating to the constitution of a country: N. in *familiar language*, a brisk walk taken for preserving bodily health. CON′STITU′TIONALLY, ad. *-lĭ*. CON′STITU′TIONALISM, n. *-shŭn-ăl-ĭzm*, the governing according to the principles of the constitution of a country; the form of government which attempts to keep the middle path between democracy and despotism, and secure the greatest freedom and good for all. CON′STITU′TIONALIST, n. *-ăl ĭst*, an adherent of constitutional government; a friend to an existing constitution or government; the framer or friend of a new constitution; also CON′STITU′TIONIST, n. CON′STITU′TIVE, a. *-tū′tĭv*, that constitutes or forms; having power to enact. CON′STITU′TIVELY, ad. *-lĭ*. ENGLISH CONSTITUTION, the sovereign, the house of lords, and the house of commons, together with the fundamental laws and customs by which they are bound and governed: see ESTATE: ENGLAND: PARLIAMENT.—SYN. of 'constitute': to create; cause; occasion; make; form; produce; establish; set; enact; compose; appoint; depute; empower;—of 'constitution': frame; temperament; formation; condition; make; conformation; law; ordinance; regulation; enactment.

CONSTITUTED AUTHORITIES: officers properly appointed under a constitution for the govt. of a people; or powers established by a constitution for the govt. of a people, the maintenance of their individual and associated

rights; distinguished from *constituting* authorities which are those that create powers or delegate the right of establishing or regulating movements that they have created.

CONSTITUTIO, *kŏn-stĭ-tū'tĭ-ō:* in civil law an establishment or settlement, used in cases of controversies settled by the parties interested without a trial; a sum paid according to agreement; an ordinance or decree deriving its force from the will of the emperor or sovereign. In old English law an ordinance or statute or the provisions of an ordinance or statute.

CONSTITUTION, in Politics: in modern acceptation, a system of law, or of law and custom, established by the sovereign power of a state *for its own guidance.* Such being the ultimate object of a constitution, its proximate objects, generally stated, are to provide for the organization of the governmental authorities and the distribution of powers between them and to define the relation of the government and the governmental officials to the inhabitants of the state and in so doing to define the private rights of the individual over against the government and governmental officials. In continental countries, since the formation of the federal government of the United States, or, at all events, since the first French Revolution, the idea of a constitution has been generally that of a body of written public law, promulgated at once by the sovereign power (see CODE; ASSEMBLY, NATIONAL). In Great Britain it is the whole body of the public law and custom, which has grown up during the course of ages, and is continually being modified by the decisions of the courts or by the representatives of the sovereign power in parliament assembled. In the United States the word constitution is used in two different senses. The first and most common is, to denote the written law contained either in the United States constitution or the various state constitutions. The second and less common use of the term includes all of the first and certain usages or customs which are conceived of as being actually recognized as binding—and so actually affecting the organization of the government, *e.g.*, the rule that a presidental elector must vote for the party nominee. Lawyers and courts are concerned only with the first use of the term; students of government with the second.

CONSTITUTION OF A STATE: the organic law of one of the states of the American Union, usually prepared by direction of its people and sanctioned by their votes, though some state constitutions have been promulgated without being submitted to popular vote, *e.g.*, the Miss. constitution of 1890. It provides for the organization of the state government, defines the rights, privileges, and immunities of its citizens; and the relations of the whole commonwealth to the subordinate counties, cities, townships, towns, etc. The constitution of a state must harmonize in all its parts with that of the United States, and

all enactments of a legislature must be in conformity with the constitution of a state; any deviations from these requirements renders a legislative act void. The constitution of a state may be amended or revised from time to time, usually in accordance with provisions contained in the constitution itself. Where none such are provided, it becomes an interesting question as to the legality of various modes of amending or revising the constitution. Single amendments are usually passed (one or more times) by the legislative body and then submitted to the people for ratification. If a general revision is wished, it is generally undertaken by a convention called to make such revision composed of delegates especially elected for the purpose, and governed by the usual rules of the legislature of the state. See CONSTITUTIONAL CONVENTION.

CONSTITUTIONAL CONVENTION: an assembly of delegates elected by popular vote to prepare or revise the constitution of a state or of the United States. The 13 original states were admitted into the Union by the act of ratifying the federal constitution of 1787; the others have been received after the passage of enabling acts by congress, and the approval by it, or by the president when authorized so to do, of drafts of proposed constitutions. The first duty of a territorial candidate for statehood, after the adoption by congress of its enabling act, is to call a constitutional convention and prepare a constitution, which must conform to the provision of the federal constitution and amendments.

On the filing in Washington of a certificate of adoption of a constitution by the popular vote of the people in the territory, the pres. of the United States issues a proclamation announcing the admission of the territory into the Union as a state. Subsequently, if deemed necessary or advantageous, the legislature may authorize a constitutional convention for the purpose of revising the constitution. At the close of the Civil War each of the states formerly in rebellion was obliged to hold a constitutional convention to prepare a new constitution, recognizing the amendments to the federal constitution that had been adopted by the northern states as a consequence of the war, with those portions of national legislation which were designed to be general in their application.

The constitution of the U. S. provides that a national constitutional convention shall be called on demand of two-thirds of the states, leaving details of the organization of the convention to be fixed by congress.

CONSTITUTION, THE, or OLD IRONSIDES (from the slightness of the injury her hull received in the fight with the Guerrière), one of the most famous vessels of the American navy. She was a 44-gun frigate of 1,576 tons; one of the six war vessels ordered by congress early in 1794, on account of the Algerian piracies. The Constitution was built at Boston by George Cloghorne and Mr. Hartley at a cost of $302,719, and was launched 1797, Sept. 20. She took part in the war of 1800 with the French in the

West Indies, as Commodore Talbot's flag-ship; her first lieutenant was Isaac Hull, by whose seamanship she beat an English frigate several miles in a day's race, and who in a boat from her captured a French privateer at Hayti. In 1803 she went to the Mediterranean as Preble's flag-ship and took part in the operations against the pirates,—notably the recapture of the Philadelphia (see DECATUR, STEPHEN), and the bombardment of Tripoli 1804, August September. It was while sailing to relieve her that the Chesapeake (q.v.) was so bloodily raided by the Leopard. In 1811, when on an errand to England under Hull, then captain, two English frigates undertook to repeat the Leopard's performance with her; but Hull outsailed the one and closed with the other, daunting the latter into drawing off, to the great disappointment of the Constitution's crew.

When the War of 1812 broke out Hull started to join the New York squadron with her, July 12; was cut off by a British squadron, including the Guerrière, but in a wonderful chase of three nights and two days outmanœuvred and escaped it. The navy Department was exceedingly afraid of an encounter between British ships and its own, was barely shamed out of keeping the latter all in port to prevent their capture, and had instructed Hull not to risk an engagement with a superior force; it had resolved to supersede him by Bainbridge, and had sent him word to remain in Boston till further orders; but he had foreboded some mischief and August 2, to avoid receiving undesirable orders, slipped out of Boston with his ship. A high authority says that had his ship been captured or unsuccessful, he would have been hanged or shot for disobedience of orders. Sailing for the Bay of Fundy and the Gulf of St. Lawrence in hope of prizes, but disappointed, he stood south for Bermuda; but on the 19th, about 100 miles east of Boston came (without recognizing her) upon the Guerrière. Its captain Dacres, had met Hull before, and bet a hat with him as to the results of a mutual fight, and had left the squadron precisely in order to capture in single combat the vessel which had eluded the whole body. The Constitution had 55 guns firing 700 pounds of metal, the Guerrière 49 guns firing 597; the crews were respectively 468 and 263 After manœuvering for position, about 5.45 P.M. the Constitution steered straight for the enemy, but reserved her fire; the Guerrière kept up a hot fire, wounding several men; at 40 yards Hull let fly his whole broadside, with the accuracy of American naval gunnery and with fearful destruction. By 6.10 the Guerrière's main yard was shot away and the rigging, sails, and hull badly damaged; just then the mizzenmast was shot through and fell dragging in the sea, acting as a rudder and making the helm useless. The Constitution came about and raked her hampered foe with two terrible broadsides, and the two shortly met. Both wished to board, but the rolling prevented it; the rigging, however, was filled with sharp-shooters who swept the decks, badly wounding

several officers of both, including Dacres, and killing one of the Constitution's. At 6.22 the Guerrière's foremast came down and carried the mainmast with it, with all the yards and rigging; and the dismasted wreck rolled in the trough of the sea perfectly helpless. Hull took possession, refusing to accept Dacres' sword, but asking for the hat. The Guerrière had lost 15 killed and 63 wounded; the Constitution, seven killed and seven wounded. The Guerrière was sinking and could not be towed into port; she was therefore blown up. Hull sailed into Boston with his prisoners, to such an ovation as few men have ever earned in so short a time. In less than 25 minutes of actual fighting he had lifted the despised American navy and nation to an equality with the proudest of the world.

Hull generously gave up the command, to give a chance to other officers, they being more plentiful than frigates; and the Constitution was made Bainbridge's flag-ship for a cruise against English commerce in the East Indies. On 1812, Dec. 29, it encountered the Java, Capt. Lambert, off the coast of Brazil, and at 2.10 P.M. joined action. The Constitution had 54 guns, with 787 pounds of metal; the Java 47, with 568 pounds. The crews were 480 and 426. One of the fiercest of naval battles ensued for nearly two hours, in which the Constitution's wheel was shot away at the outset, making its navigation difficult, and the English vessel was the better sailer anyway. But the American gunnery was incomparably more intelligent, and improved every opportunity for raking broadsides, while the British did not. As soon as the Constitution came to close quarters, she inflicted ruinous damage and frightful slaughter. The Java's jib-boom and bowsprit were soon shot away, and the running rigging made useless; at 3.05 P.M. the foremast was carried away, shattering the forecastle and main deck, and making several guns inaccessible, soon afterward the maintopmast fell, and in a short time the gaff and spanker boom. Bainbridge had been twice badly wounded, and now Lambert was fatally shot. At 3.30 the Java's fire slackened, and the Constitution poured in broadsides almost unanswered; at 3.55 the former's mizzenmast went; at 4.05 the fire had wholly ceased, half the guns were useless, and the mainmast was tottering and had to be cut away. This closed the action, and the Java struck. She had lost 60 killed and 101 wounded, against the Constitution's 9 killed and 25 wounded. The Java was so utter a ruin that she could only be got into the nearest port (Bahia), and was blown up. The Constitution was taken into Boston for repairs; but before they were completed, Boston was closely blockaded, and she did not escape till New Year's Day 1814, under Capt. Charles Stewart.

In a cruise to the West Indies, Capt. Stewart captured four prizes, with 24 guns and 76 men; one of them was the 14-gun schooner Picton. Again blockaded by a powerful British squadron, she did not escape till 1814, Dec. 17. The news that the Constitution was loose again spread

consternation among the British merchant service, and vigilance among the naval. Standing toward the Madeiras, on 1815, Feb. 20, Capt. Stewart, about 150 miles northeast of Madeira, encountered two ship-rigged war vessels: the frigate Cyane, 34 guns with 451 pounds to the broadside; and the sloop-of-war Levant, 21 guns with 303 pounds, aggregating 55 guns with 754 pounds. The Constitution had 51 guns with 644 pounds. The two, however, had but 313 crew against the Constitution's 456. The engagement began at 6.05 P.M. For skill and beauty the manœuvres by which Stewart rapidly passed back and forward around and between the ships, raking both with terrific broadsides again and again, and slipping away from them when they had secured raking positions, are unsurpassed in naval history. At 6.50 P.M. the Cyane struck; the Levant temporarily escaped, but was overhauled by the Constitution, and at 10 P.M. surrendered also. The two ships had lost 35 killed and 42 wounded; the Constitution, 4 killed and 10 wounded. Cut off by a powerful British squadron at a neutral port whose neutrality the English treated with utter contempt, the Constitution and Cyane succeeded by fine seamanship in escaping, but the Levant was recaptured. In 1830 the Constitution was reported unseaworthy, and condemned, but Oliver Wendell Holmes published in the Boston *Advertiser* his thrilling poem *Old Ironsides*, and the public clamor excited by it saved the noble vessel, which was rebuilt and again put in service in 1833. In 1855 she was laid up at the Portsmouth Navy Yard, but used sometimes as a training ship; in 1877 was again partially rebuilt, and took her last trip across the Atlantic the next year. In 1897 she was roofed in at the Boston Navy Yard.

CONSTITUTIONAL UNION PARTY: in United States history, popularly known in its own time as the Bell-Everett party, from the names of its presidential candidates; the name assumed by the remnant of the Southern Whigs in 1860. On 1860, May 9, this element held a convention at Baltimore; adopted a platform deprecating 'geographical and sectional parties,' and making it an obligation of both 'patriotism and duty' to hold as a sole political principle 'the Constitution of the country, the Union of the States, and the enforcement of the laws' (that is, the Fugitive Slave Law); and nominated for president John Bell of Kentucky, and for vice-president Edward Everett of Massachusetts. The party had only a small scattering vote in the North. But in the South it was the only refuge left for the Union men and moderates, who would not vote for Breckinridge and the secession Democrats; and it carried the three border states, Kentucky, Tennessee, and Virginia; almost carried Maryland, was but lightly defeated in Arkansas and Delaware; and also came well toward equality in North Carolina, in Florida, and in Louisiana. The party gained 39 electoral votes. and 589,581 popular votes.

CONSTITUTION OF THE UNITED STATES.

CONSTITUTION OF THE UNITED STATES: the supreme law of the land, proposed by the convention of 1787 to take the place of the Articles of Confederation, and ratified by a sufficient number of states for it to go into operation 1789. The following is the complete text, with the preamble and subsequent amendments:

We, the people of the United States, in order to form a more perfect union, establish justice, insure domestic tranquillity, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this constitution for the United States of America.

ARTICLE I., SEC. 1.—All legislative powers herein granted shall be vested in a congress of the United States, which shall consist of a senate and house of representatives.

SEC. 2.—The house of representatives shall be composed of members chosen every second year by the people of the several states; and the electors in each state shall have the qualifications requisite for electors of the most numerous branch of the state legislature.

No person shall be a representative who shall not have attained to the age of twenty-five years, and been seven years a citizen of the United States, and who shall not, when elected, be an inhabitant of that state in which he shall be chosen.

Representatives and direct taxes shall be apportioned among the several states which may be included within this Union, according to their respective numbers, which shall be determined by adding to the whole number of free persons, including those bound to service for a term of years, and excluding Indians not taxed, three-fifths of all other persons. The actual enumeration shall be made within three years after the first meeting of the congress of the United States, and within every subsequent term of ten years, in such manner as they shall by law direct. The number of representatives shall not exceed one for every 30,000, but each state shall have at least one representative; and until such enumeration shall be made, the state of New Hampshire shall be entitled to choose three; Massachusetts, eight; Rhode Island and Providence Plantations, one; Connecticut, five; New York, six; New Jersey, four; Pennsylvania, eight; Delaware, one; Maryland, six; Virginia, ten; North Carolina, five; South Carolina, five; and Georgia, three.

When vacancies happen in the representation from any state, the executive authority thereof shall issue writs of election to fill such vacancies.

The house of representatives shall choose their speaker and other officers, and shall have the sole power of impeachment.

SEC. 3.—The senate of the United States shall be composed of two senators from each state, chosen by the legislature thereof for six years; and each senator shall have one vote.

Immediately after they shall be assembled in conse-

quence of the first election, they shall be divided as equally as may be into three classes. The seats of the senators of the first class shall be vacated at the expiration of the second year, of the second class at the expiration of the fourth year, and of the third class at the expiration of the sixth year, so that one-third may be choosen every second year; and if vacancies happen, by resignation or otherwise, during the recess of the legislature of any state, the executive thereof may make temporary appointments until the next meeting of the legislature, which shall then fill such vacancies.

No person shall be a senator who shall not have attained the age of thirty years, and been nine years a citizen of the United States, and who shall not, when elected, be an inhabitant of that state for which he shall be chosen.

The vice-president of the United States shall be president of the senate, but shall have no vote unless they be equally divided.

The senate shall choose their other officers, and also a president *pro tempore* in the absence of the vice-president, or when he shall exercise the office of president of the United States.

The senate shall have the sole power to try all impeachments. When sitting for that purpose, they shall be on oath or affirmation. When the president of the United States is tried, the chief justice shall preside. and no person shall be convicted without the concurrence of two-thirds of the members present.

Judgment in cases of impeachment shall not extend further than to removal from office, and disqualification to hold and enjoy any office of honor, trust, or profit under the United States; but the party convicted shall nevertheless be liable and subject to indictment, trial, judgment, and punishment, according to law.

SEC. 4.—The times, places, and manner of holding elections for senators and representatives shall be prescribed in each state by the legislature thereof; but the congress may at any time, by law, make or alter such regulations, except as to the places of choosing senators.

The congress shall assemble at least once in every year; and such meeting shall be on the first Monday in December, unless they shall by law appoint a different day.

SEC. 5.—Each house shall be the judge of the elections, returns, and qualifications of its own members, and a majority of each shall constitute a quorum to do business; but a smaller number may adjourn from day to day, and may be authorized to compel the attendance of absent members, in such manner and under such penalties as each house may provide.

Each house may determine the rules of its proceedings, punish its members for disorderly behavior, and with the concurrence of two-thirds, expel a member.

Each house shall keep a journal of its proceedings, and from time to time publish the same, excepting such parts as may in their judgment require secrecy, and the yeas and nays of the members of either house on any question

shall, at the desire of one-fifth of those present, be entered on the journal.

Neither house, during the session of congress, shall, without the consent of the other, adjourn for more than three days, nor to any other place than that in which the two houses shall be sitting.

SEC. 6.—The senators and representatives shall receive a compensation for their services, to be ascertained by law, and paid out of the treasury of the United States. They shall, in all cases, except treason, felony, and breach of the peace, be privileged from arrest during the irattendance at the session of their respective houses, and in going to, and returning from the same; and for any speech or debate in either house they shall not be questioned in any other place.

No senator or representative shall, during the time for which he was elected, be appointed to any civil office under the authority of the United States, which shall have been created, or the emoluments whereof shall have been increased, during such time; and no person holding any office under the United States shall be a member of either house during his continuance in any office.

SEC. 7.—All bills for raising revenue shall originate in the house of representatives; but the senate may propose or concur with amendments, as on other bills.

Every bill which shall have passed the house of representatives and the senate, shall, before it become a law, be presented to the president of the United States; if he approve, he shall sign it; but if not, he shall return it, with his objections, to that house in which it shall have originated; who shall enter the objections at large on their journal, and proceed to reconsider it. If, after such reconsideration, two-thirds of that house shall agree to pass the bill, it shall be sent, together with the objections, to the other house, by which it shall likewise be reconsidered; and if approved by two-thirds of that house, it shall become a law. But in all such cases the votes of both houses shall be determined by yeas and nays, and the names of the persons voting for and against the bill shall be entered on the journal of each house respectively. If any bill shall not be returned by the president within ten days (Sundays excepted) after it shall have been presented to him, the same shall be a law in like manner as if he had signed it, unless the congress by their adjournment prevent its return, in which case it shall not be a law.

Every order, resolution, or vote, to which the concurrence of the senate and house of representatives may be necessary (except on a question of adjournment), shall be presented to the president of the United States; and before the same shall take effect, shall be approved by him; or being disapproved by him, shall be repassed by two-thirds of the senate and house of representatives, according to the rules and limitations prescribed in the case of a bill.

SEC. 8.—The congress shall have power to lay and collect taxes, duties, imposts, and excises; to pay the debts, and provide for the common defense and general welfare

of the United States; but all duties, imposts, and excises shall be uniform throughout the United States; to borrow money on the credit of the United States; to regulate commerce with foreign nations, and among the several states, and with the Indian tribes; to establish a uniform rule of naturalization, and uniform laws on the subject of bankruptcies throughout the United States; to coin money, regulate the value thereof and of foreign coin, and to fix the standard of weights and measures; to provide for the punishment of counterfeiting the securities and current coin of the United States; to establish post-offices and post-roads; to promote the progress of science and useful arts, by securing for limited times, to authors and inventors, the exclusive right to their respective writings and discoveries; to constitute tribunals inferior to the supreme court; to define and punish piracies and felonies committed on the high seas, and offenses against the law of nations; to declare war, grant letters of marque and reprisal, and make rules concerning captures on land and water; to raise and support armies; but no appropriation of money to that use shall be for a longer term than two years; to provide and maintain a navy; to make rules for the government and regulation of the land and naval forces; to provide for calling forth the militia to execute the laws of the Union, suppress insurrections, and repel invasions; to provide for organizing, arming, and disciplining the militia, and for governing such parts of them as may be employed in the service of the United States; reserving to the states respectively the appointment of the officers and the authority of training the militia according to the discipline prescribed by congress; to exercise exclusive legislation in all cases whatsoever, over such district (not exceeding ten miles square) as may, by cession of particular states, and the acceptance of congress, become the seat of government of the United States; and to exercise like authority over all places purchased by the consent of the legislature of the state in which the same shall be, for the erection of forts, magazines, arsenals, dockyards, and other needful buildings;—and to make all laws which shall be necessary and proper for carrying into execution the foregoing powers and all other powers vested by this constitution in the government of the United States, or in any department or officer thereof.

SEC. 9.—The migration or importation of such persons as any of the states now existing shall think proper to admit, shall not be prohibited by the congress prior to the year one thousand eight hundred and eight; but a tax or duty may be imposed on such importation not exceeding ten dollars for each person.

The privilege of the writ of *habeas corpus* shall not be suspended, unless when, in cases of rebellion or invasion, the public safety may require it.

No bill of attainder or *ex post facto* law shall be passed.

No capitation or other direct tax shall be laid, unless in proportion to the census or enumeration hereinbefore directed to be taken.

No tax or duty shall be laid on articles exported from any state.

No preference shall be given by any regulation of commerce or revenue to the ports of one state over those of another; nor shall vessels bound to or from one state be obliged to enter, clear, or pay duties in another.

No money shall be drawn from the treasury, but in consequence of appropriations made by law; and a regular statement and account of the receipts and expenditures of all public money shall be published from time to time.

No title of nobility shall be granted by the United States: and no person holding any office of profit or trust under them, shall, without the consent of the congress, accept of any present, emolument, office, or title, of any kind whatever, from any king, prince, or foreign state.

SEC. 10.—No state shall enter into any treaty, alliance, or confederation; grant letters of marque and reprisal; coin money; emit bills of credit; make anything but gold and silver coin a tender in payment of debts; pass any bill of attainder, *ex post facto* law, or law impairing the obligation of contracts; or grant any title of nobility.

No state shall, without the consent of the congress, lay any imposts or duties on imports or exports, except what may be absolutely necessary for executing its inspection laws: and the net produce of all duties and imposts laid by any state on imports or exports, shall be for the use of the treasury of the United States, and all such laws shall be subject to the revision and control of the congress.

No state shall, without the consent of congress, lay any duty on tonnage, keep troops or ships of war in time of peace, enter into any agreement or compact with another state, or with a foreign power, or engage in war, unless actually invaded, or in such imminent danger as will not admit of delay.

ARTICLE II., SEC. 1.—The executive power shall be vested in a president of the United States of America. He shall hold his office during the term of four years; and, together with the vice-president, chosen for the same term, be elected as follows:

Each state shall appoint, in such manner as the legislature thereof may direct, a number of electors equal to the whole number of senators and representatives to which the state may be entitled in the congress; but no senator or representative, or person holding an office of trust or profit under the United States, shall be appointed an elector.*

The congress may determine the time of choosing the electors, and the day on which they shall give their votes, which day shall be the same throughout the United States.

No person, except a natural born citizen, or a citizen of the United States at the time of the adoption of this constitution, shall be eligible to the office of the president: neither shall any person be eligible to that office who shall

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* Changed by 12th amendment (q.v.).

not have attained to the age of thirty-five years, and been fourteen years a resident within the United States.

In the case of the removal of the president from office, or of his death, resignation, or inability to discharge the powers and duties of the said office, the same shall devolve on the vice-president; and the congress may, by law, provide for the case of removal, death, resignation, or inability, both of the president and vice-president, declaring what officer shall then act as president; and such officer shall act accordingly, until the disability be removed, or a president shall be elected.

The president shall, at stated times, receive for his services a compensation, which shall neither be increased nor diminished during the period for which he shall have been elected; and he shall not receive within that period any other emolument from the United States, or any of them.

Before he enters on the execution of his office, he shall take the following oath or affirmation: 'I do solemnly swear (or affirm) that I will faithfully execute the office of president of the United States: and will, to the best of my ability, preserve, protect, and defend the constitution of the United States.'

SEC. 2.—The president shall be commander-in-chief of the army and navy of the United States, and of the militia of the several states, when called into the actual service of the United States; he may require the opinion, in writing, of the principal officer in each of the executive departments, upon any subjects relating to the duties of their respective offices; and he shall have power to grant reprieves and pardons for offenses against the United States, except in cases of impeachment.

He shall have power, by and with the advice and consent of the senate, to make treaties, provided two-thirds of the senators present concur; and he shall nominate, and, by and with the advice and consent of the senate, shall appoint ambassadors and other public ministers and consuls, judges of the supreme court, and all other officers of the United States whose appointments are not herein otherwise provided for, and which shall be established by law; but the congress may, by law, vest the appointment of such inferior officers as they think proper, in the president alone, in the courts of law, or in the heads of departments.

The president shall have power to fill up all vacancies that may happen during the recess of the senate, by granting commissions, which shall expire at the end of their next session.

SEC. 3.—He shall, from time to time, give to the congress information of the state of the Union, and recommend to their consideration such measures as he shall judge necessary and expedient; he may, on extraordinary occasions, convene both houses, or either of them, and in case of disagreement between them, with respect to the time of adjournment, he may adjourn them to such time as he shall think proper; he shall receive ambassadors and other public ministers; he shall take care that the laws be faithfully

executed, and shall commission all officers of the United States.

SEC. 4.—The president, vice-president, and all civil officers of the United States, shall be removed from office on impeachment for, and conviction of, treason, bribery, or other high crimes and misdemeanors.

ARTICLE III., SEC. 1.—The judicial power of the United States shall be vested in one supreme court, and in such inferior courts of the congress may, from time to time, ordain and establish. The judges, both of the supreme and inferior courts, shall hold their offices during good behavior; and shall, at stated times, receive for their services a compensation, which shall not be diminished during their continuance in office.

SEC. 2.—The judicial power shall extend to all cases in law and equity arising under this constitution, the laws of the United States, and treaties made, or which shall be made, under their authority; to all cases affecting ambassadors, other public ministers, and consuls; to all cases of admiralty and maritime jurisdiction; to controversies to which the United States shall be a party; to controversies between two or more states; between a state and citizens of another state; between citizens of different states; between citizens of the same state claiming lands under grants of different states; and between a state, or the citizens thereof, and foreign states, citizens, or subjects.

In all cases affecting ambassadors, other public ministers, and consuls, and those in which a state shall be a party, the supreme court shall have original jurisdiction. In all the other cases before mentioned, the supreme court shall have appellate jurisdiction, both as to law and fact, with such exceptions and under such regulations as the congress shall make.

The trial of all crimes, except in cases of impeachment, shall be by jury, and such trial shall be held in the state where the said crimes shall have been committed; but when not committed within any state, the trial shall be at such place or places as the congress may by law have directed.

SEC. 3.—Treason against the United States shall consist only in levying war against them, or in adhering to their enemies, giving them aid and comfort.

No person shall be convicted of treason, unless on the testimony of two witnesses to the same overt act, or on confession in open court.

The congress shall have power to declare the punishment of treason; but no attainder of treason shall work corruption of blood, or forfeiture, except during the life of the person attainted.

ARTICLE IV., SEC. 1.—Full faith and credit shall be given in each state to the public acts, records, and judicial proceedings of every other state. And the congress may by general laws prescribe the manner in which such acts, records, and proceedings shall be proved, and the effect thereof.

SEC. 2.—The citizens of each state shall be entitled to all

the privileges and immunities of citizens in the several states.

A person charged in any state with treason, felony, or other crime, who shall flee from justice, and be found in another state, shall, on demand of the executive authority of the state from which he fled, be delivered up, to be removed to the state having jurisdiction of the crime.

No person held to service or labor in one state, under the laws thereof, escaping into another, shall, in consequence of any law or regulation therein, be discharged from such service or labor; but shall be delivered up on claim of the party to whom such service or labor may be due.

SEC. 3.—New states may be admitted by the congress into this Union; but no new state shall be formed or erected within the jurisdiction of any other state, nor any state be formed by the junction of two or more states, or parts of states, without the consent of the legislatures of the states concerned, as well as of the congress.

The congress shall have power to dispose of, and make all needful rules and regulations respecting the territory or other property belonging to the United States; and nothing in this constitution shall be so construed as to prejudice any claims of the United States, or of any particular state.

SEC. 4.—The United States shall guarantee to every state in this Union a republican form of government, and shall protect each of them against invasion: and, on application of the legislature, or of the executive (when the legislature cannot be convened), against domestic violence.

ARTICLE V.—The congress, whenever two-thirds of both houses shall deem it necessary, shall propose amendments to this constitution; or, on the application of the legislatures of two-thirds of the several states, shall call a convention for proposing amendments, which, in either case, shall be valid, to all intents and purposes, as parts of this constitution, when ratified by the legislatures of three-fourths of the several states, or by conventions in three-fourths thereof, as the one or the other mode of ratification may be proposed by the congress; provided that no amendment which may be made prior to the year one thousand eight hundred and eight shall in any manner affect the first and fourth clauses in the ninth section of the first article; and that no state, without its consent, shall be deprived of its equal suffrage in the senate.

ARTICLE VI —All debts contracted, and engagements entered into, before the adoption of this constitution, shall be as valid against the United States under this constitution as under the Confederation.

This constitution, and the laws of the United States which shall be made in pursuance thereof, and all treaties made, or which shall be made, under the authority of the United States, shall be the supreme law of the land; and the judges in every state shall be bound thereby, anything in the constitution or laws of any state to the contrary notwithstanding.

The senators and representatives before mentioned, and the members of the several state legislatures, and all executive and judicial officers both of the United States and of the several states, shall be bound by oath or affirmation to support this constitution; but no religious test shall ever be required as a qualification to any office or public trust under the United States.

ARTICLE VII.—The ratification of the conventions of nine states shall be sufficient for the establishment of this constitution between the states so ratifying the same.

Done in convention, by the unanimous consent of the states present, the seventeenth day of September, in the year of our Lord one thousand seven hundred and eighty-seven, and of the Independence of the United States of America the twelfth. In witness whereof we have hereunto subscribed our names.

GEORGE WASHINGTON,
President, and Deputy from Virginia.

Amendments to the Constitution.—ARTICLE I.—Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech or of the press; or the right of the people peaceably to assemble, and to petition the government for a redress of grievances.

ARTICLE II.—A well-regulated militia being necessary to the security of a free state, the right of the people to keep and bear arms shall not be infringed.

ARTICLE III.—No soldier shall, in time of peace, be quartered in any house without the consent of the owner, nor in time of war, but in a manner to be prescribed by law.

ARTICLE IV.—The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated; and no warrants shall issue but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

ARTICLE V.—No person shall be held to answer for a capital or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor shall any person be subject for the same offense to be put twice in jeopardy of life or limb; nor shall be compelled in any criminal case to be witness against himself; nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use without just compensation.

ARTICLE VI.—In all criminal prosecutions the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the state and district wherein the crime shall have been committed, which district shall have been previously ascertained by law; and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for

obtaining witnesses in his favor; and to have the assistance of counsel for his defense.

ARTICLE VII.—In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury shall be otherwise re-examined in any court of the United States, than according to the rules of the common law.

ARTICLE VIII.—Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

ARTICLE IX.—The enumeration in the constitution of certain rights shall not be construed to deny or disparage others retained by the people.

ARTICLE X.—The powers not delegated to the United states by the constitution, nor prohibited by it to the states, are reserved to the states respectively, or to the people.*

ARTICLE XI.—The judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States by citizens of another state, or by citizens or subjects of any foreign state.†

ARTICLE XII.—The electors shall meet in their respective states, and vote by ballot for president and vice-president, one of whom, at least, shall not be an inhabitant of the same state with themselves. They shall name in their ballots the person voted for as president, and in distinct ballots the person voted for as vice-president; and they shall make distinct lists of all persons voted for as president, and of all persons voted for as vice-president, and of the number of votes for each; which lists they shall sign and certify, and transmit sealed to the seat of the government of the United States, directed to the president of the senate. The president of the senate shall, in the presence of the senate and house of representatives, open all the certificates, and the votes shall then be counted. The person having the greatest number of votes for president shall be the president, if such number be a majority of the whole number of electors appointed: and if no person have such majority, then from the persons having the highest numbers, not exceeding three, on the list of those voted for as president, the house of representatives shall choose immediately, by ballot, the president. But, in choosing the president, the votes shall be taken by states, the representation from each state having one vote: a quorum for this purpose shall consist of a member or members from two-thirds of the states, and a majority of all the states shall be necessary to a choice. And if the house of representatives shall not choose a president, whenever the right of choice shall devolve upon them, before the fourth day of March next following, then the vice-president shall act as president, as in the case of the death or other constitutional

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* The above articles were proposed by the first congress 1789-90.

† Proposed 1793.

disability of the president. The person having the greatest number of votes as vice-president shall be the vice-president, if such number be a majority of the whole number of electors appointed; and if no person have a majority, then from the two highest numbers on the list the senate shall choose the vice-president. A quorum for the purpose shall consist of two-thirds of the whole number of senators, and a majority of the whole number shall be necessary to a choice. But no person constitutionally ineligible to the office of president shall be eligible to that of vice-president of the United States.*

ARTICLE XIII.—Sec. 1.—Neither slavery nor involuntary servitude, except as a punishment for crime, whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.

Sec. 2.—Congress shall have power to enforce this article by appropriate legislation.†

ARTICLE XIV.—Sec. 1.—All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States, and the state wherein they reside. No state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any state deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.

Sec. 2.—Representatives shall be apportioned among the several states according to their respective numbers, counting the whole number of persons in each state, excluding Indians not taxed. But when the right to vote at any election for the choice of electors for president or vice-president of the United States, representatives in congress, the executive and judicial officers of a state, or the members of the legislature thereof, is denied to any of the male inhabitants of such state being twenty-one years of age, the citizens of the United States, or in any way abridged, except for participation in rebellion or other crime, the basis of representation therein shall be reduced in the proportion which the number of such male citizens shall bear to the whole number of male citizens twenty-one years of age in such state.

Sec. 3.—No person shall be a senator or representative in congress, or elector of president and vice-president, or hold any office, civil or military, under the United States, or under any state, who, having previously taken an oath as a member of congress, or as an officer of the United States, or as a member of any state legislature, or as an executive or judicial officer of any state, to support the constitution of the United States, shall have engaged in insurrection or rebellion against the same, or given aid or comfort to the enemies thereof. But congress may, by a vote of two-thirds of each house, remove such disability.

Sec. 4.—The validity of the public debt of the United States, authorized by law, including debts incurred for pay-

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* Proposed 1803. † Proposed 1865.

ment of pensions and bounties for services in suppressing insurrection or rebellion, shall not be questioned. But neither the United States nor any other state shall assume or pay any debt or obligation incurred in aid of insurrection or rebellion against the United States, or any claim for the loss or emancipation of any slave; but all such debts, obligations, and claims shall be held illegal and void.

Sec. 5.—The congress shall have power to enforce, by appropriate legislation, the provisions of this article.*

ARTICLE XV. Sec. 1.—The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any state on account of race, color, or previous condition of servitude.

Sec. 2.—The congress shall have power to enforce this article by appropriate legislation.†

CONSTITUTIONS, APOSTOLICAL: see APOSTOLICAL CANONS AND CONSTITUTIONS.

CONSTITUTIONS OF CLARENDON: see CLARENDON, CONSTITUTIONS OF.

CONSTRAIN, v. *kŏn-strān'* [F. *contraindre;* OF. *constraindre*—from L. *constringĕrĕ,* to draw or bind together—from *con, stringĕrĕ,* to bind, to strain—*lit.*, to draw or bind together]: to force or compel; to press or urge with a force sufficient to produce a desired effect. CONSTRAIN'ING, imp. CONSTRAINED', pp. *-strānd'*. CONSTRAIN'EDLY, ad. *-ĕd-lĭ*. CONSTRAIN'ABLE, a. *-ā-bl*, that may be forced or repressed. CONSTRAINT', n. *-strānt'* [F. *contrainte*]: any force or power, physical or moral, that compels to do, or keeps from doing.—SYN. of 'constrain': to bind; compel; force; drive; oblige; coerce; impel; press; urge;—of 'constraint': compulsion; urgency; violence; necessity; confinement.

CONSTRICT, v. *kŏn-strĭkt'* [L. *constrictus,* drawn or bound together (see CONSTRAIN)]: to draw or bind together; to bind; to draw into a narrow compass. CONSTRIC'TING, imp. CONSTRIC'TED, pp.: ADJ. tightened or contracted. CONSTRIC'TOR, n. *-ter*, that which contracts or draws together; a large species of serpent, as the *boa constrictor*, which squeezes its victims to death. CONSTRIC'TION, n. *-strĭk'shŭn* [F.—L]: a contracting or drawing together.

CONSTRINGE, v. *kŏn-strĭnj'* [see CONSTRAIN]: to contract; to force into a narrow compass. CONSTRING'ING, imp. CONSTRINGED', pp. *-strĭnjd'*. CONSTRIN'GENT, a. *-strĭn'jĕnt*, having the property of contracting or drawing together.

CONSTRUCT, v. *kŏn-strŭkt'* [L. *constructus*, heaped or piled together, built—from *con, structus*, piled up, built]: to pile up or build; to compose and put in order; to make; to invent. CONSTRUC'TING, imp. CONSTRUC'TED, pp. CONSTRUC'TER, n. [F. *constructeur*]: one who. CONSTRUC'TION, n. *strŭk'shŭn* [F.—L.]: the act of building; the thing formed or built; the proper arrangement and connection of words in a sentence; the sense, meaning, or

* Proposed 1868. † Proposed 1870.

interpretation, as of the words of another, etc; the manner of drawing figures or diagrams in mathematics. CONSTRUC'TIONAL, a. *-ăl*, pertaining to. CONSTRUC'TIVE, a. *-tĭv*, not directly expressed but inferred. CONSTRUC'TIVELY, ad. *-lĭ*. CONSTRUC'TIVENESS, n. in *phren.*, the faculty of the mind that produces a desire to construct or form.—SYN. of 'construct': to build; erect; fabricate; form; make; originate; invent; devise; arrange;—of 'construction': edifice; building; fabric; structure; fabrication; composition; conformation; arrangement; understanding; explanation; sense.

CONSTRUCTIVENESS: an instinct which manifests itself in animals and men in the presence of plastic materials. Substances that can be shaped, moulded, taken to pieces and put together again have given rise to activities in animals and men by which they are transformed into shelters, nests, coverings and homes. As almost all objects will yield in some measure to transformations, there are few things which have not been turned to useful purposes. Birds make use of straw, fiber of all kinds and mud. Bees use wood fiber, leaves and mud, and human beings both from immediate apprehension and from imitation of animals have left few things to one side as serving them no purposes either for clothing, shelter, defense and attack, or transportation. In children the instinct manifests itself by moulding and shaping plastic substances long before they have any use for the instinct in actual life. The study of animal industries and primitive culture has proved the source of many new ideas about the qualities and values of things.

CONSTRUE, v. *kŏn'strô* [L. *constru'ĕrĕ*, to construct, to make—from *con*, *strŭĕrĕ*, to heap up, to pile: F. and It. *costruire* (see CONSTRUCT)]: to arrange words in their natural order when translating a dead or foreign language; to interpret; to explain. CON'STRUING, imp. CON'STRUED, pp. *-strôd*.

CONSTUPRATE, v. *kŏn'stū-prāt* [L. *constuprātus*, violated—from *con*, *stupro*, I ravish]: to violate the person of; to ravish. CON'STUPRA'TION, n. *-prā'shŭn*.

CONSUBSTANTIAL, a. *kŏn'sŭb-stăn'shăl* [F. *consubstantiel*—from L. *consubstantĭālis*—from *con*, *substantĭă* substance or matter]: having the same substance, essence or nature. CON'SUBSTAN'TIALLY, ad. *-lĭ*. CON'SUBSTAN'TIATE, v. *-shĭ-āt*, to unite in one common substance or nature. CON'SUBSTAN'TIATING, imp. CON'SUBSTAN'TIATED, pp. CON'SUBSTANTIA'TION, n. *-shĭ-ā'shŭn*, theory of a substantial local union of the body and blood of our Lord with the consecrated bread and wine in the Eucharist; often, but erroneously, attributed to the Lutheran Church. See TRANSUBSTANTIATION. CON'SUBSTANTIAL'ITY, *-shĭ-ăl'ĭ-tĭ*, the existence of more than one in the same substance. CON'SUBSTAN'TIALIST, n. *-ĭst*, one who believes in consubstantiation.

CONSUETUDE, n. *kŏn'swē-tūd* [L. *consŭētūdo*, habit,

use—from *con, sŭētum,* to be accustomed, to be wont]: custom; usage. CON'SUETU'DINARY, a. *-tū'dĭ-nėr-ĭ,* customary; derived from use and wont; from time immemorial.

CONSUETUDINARY LAW, *kŏn-swē-tū'dĭ-nėr-ĭ:* law which derives its binding character, not from the expressed, but from the tacit consent of the general will of the community. As it is generally transmitted from age to age by oral tradition and universal custom, and is rarely embodied in any positive enactment, Consuetudinary Law is spoken of often as unwritten law (*lex non scripta*). The customary laws of Normandy, Brittany, and some other provinces of France, however, were reduced to writing; and much of the common law, of England and of Scotland, now rests on statute, as well as on custom and usage. Even in modern practice, usage is often resorted to as the best interpreter of law. Of this a familiar example is the important part assigned to mercantile usage in construing the law-merchant. In this case, the custom must generally be established by evidence, in place of being taken for granted, as are the laws of primogeniture, legitim, terce, courtesy, and the like. For the effect of custom in repealing statutes, see DESUETUDE. See also COMMON LAW.

CONSUL, n. *kŏn'sŭl* [L. *consul*—from *con'sulo,* I consider, I deliberate: It. *console:* F. *consul,* a consul]: in *anc. Rome,* a person elected to exercise sovereign power in the state—two being chosen annually; a person chosen to represent in certain respects a sovereign or a country in a foreign state, and to look after the interests of his country in that state. CON'SULAR, a. *-sū-lėr,* pertaining to the power or dignity of a consul. CONSULSHIP, n. *kŏn'sŭl-ship,* the office. CON'SULATE, n. *-sū-lāt,* the office, jurisdiction, or residence of a consul. CONSULATE OF THE SEA, collection of maritime codes and customs, published in Barcelona, Spain, 15th c. For a translation of its most valuable portion, *The Customs of the Sea,* see APPENDIX to the *Black Book of the Admiralty* (Lond. 1874). CON'SULAGE, n. *-lāj,* a duty laid on imports and exports by the consul of a port.

CON'SUL: title of the two highest ordinary magistrates in the Roman republic. The etymology of the word seems to imply there were more than one—that there were colleagues. The idea of two supreme magistrates, or joint-presidents of the state, seems to have been interwoven with the earliest conceptions of political organization in Rome. According to tradition, there were at first two kings; and the constitution of Servius is said to have provided for the sovereign power being again divided between two functionaries. But it was not till after the expulsion of Tarquin that Lucius Junius Brutus and Lucius Tarquinius Collatinus were chosen joint-heads of the state. These chief magistrates appear to have been at first called *prætores* (leaders, *i.e.,* of the armies), and the title of *consules* was introduced probably about B.C. 300. At first, the con-

suls seem to have differed from the kings in little else than their limited tenure of office, and the power which their fellow-citizens retained of calling them to account at its termination. They never assumed the golden crown, but their dress in almost every other respect was regal, and they had ivory sceptres surmounted by eagles. In public assemblies, they occupied a sort of throne (*sella curulis*), and in the senate they presided and sat on elevated seats. They made peace and negotiated foreign alliances, had the supreme command of the army, and appointed the public treasurers. They likewise exercised the judicial functions of royalty. In their capacity of supreme judges they continued to be known as *prætores*, until ultimately separate magistrates with that title were appointed. The symbol of their authority was the bundle of rods (*fasces*), with the axe in the centre, which was carried before them by twelve lictors. For a considerable period, the consuls were chosen exclusively from the *populus* or patricians, as opposed to the *plebs;* and during the long struggle between the patricians and plebeians, they sided invariably with their own order. At length, however, two plebeian officers, called *tribuni plebis*, were appointed as a sort of democratic rivals to the aristocratic consuls. To them was assigned the duty of presiding in the assemblies of the plebeians, as the consuls did in the other assemblies; and though they could not dictate, they were entitled by their *veto* to arrest measures proceeding on consular or senatorial authority. The result of this rivalry was, that the consulship was opened to plebeians; and from B.C. 172 to the period of the empire, the consuls were frequently plebeians. In accordance with the ordinary course of political development, the organization of the Roman state became more complicated, in proportion as it became impossible for the consul to discharge in person the various duties which in the beginning always centre in the possessors of supreme power. In B.C. 442, censors (q.v.) were appointed. In 365, prætors had the chief judicial functions of the consuls assigned to them. In the government of the provinces, the aid of the former consuls was called in, the consul thus appointed having the title of *pro-consul.* In sudden and critical emergencies, the consuls were either superseded by a dictator (q.v.), or absolute power for the occasion was conferred on them by the decree of the senate, which ran in the famous formula: *Videant consules ne quid respublica detrimenti capiat*—'Let the consuls look to it, that the state take no harm.' The oath which the consuls took on entering office they were obliged to repeat as a declaration, not of intention but of fact, on quitting it at the end of the year. The consuls were inaugurated by a great procession to the Capitol and a sacrifice to Jupiter Capitolinus. The shadow of the consulate survived the downfall of liberty; but the election of the consuls was taken from the people and conferred on the senate. Then their number was increased; they were divided into classes—*C. ordinarii, suffecti, honararii*, etc.—till at last the office became a mere honorary appointment conferred by the emperor.

The title of consul was revived in the French republic: see CONSULATE.

CON'SUL, MERCANTILE: officer whom the state maintains in a foreign country for the protection of its trade, and vindication of the rights of its merchants, and to whom the further duty is assigned of keeping the home government informed of all facts bearing on the commercial interests of the country. The practice of appointing such officers originated among the trading communities of Italy about the middle of the 12th c., and gradually extended itself; and in the 16th c., had been adopted by all the countries of Europe. In addition to their commercial duties, others of a more strictly political kind were frequently confided to consuls in places in which there was no ambassador or political agent. In almost all the countries of Europe, consuls are divided into consuls-general, consuls, vice-consuls, and consular agents. The consul's first duty on his arrival, is to exhibit his commission to the authorities of the country to which he is accredited, in order that he may obtain their sanction to his appointment. This sanction is communicated to him in a document called an *exequatur*, which secures to him the enjoyment of such 'privileges, immunities, and exemptions as have been enjoyed by his predecessors, and as are usually granted to consuls in the country in which he is to reside.' A consul is expected, and is under orders to make himself conversant with the laws and general principles which relate to the trade of his country with foreign parts, and with the language and municipal laws of the country wherein he resides. Further, it is his duty to protect his countrymen in the lawful exercise of their trade, to quiet their differences, to obtain the redress of injuries done them—failing which, to report the matter to the ambassador of his country at the court of that nation—and to forward to his home govt. various returns of the trade of the ports within his consulate, as well as accounts of market prices and of the course of exchange, etc. The consul must afford relief to seamen or others from his own country, wrecked on the coast, and at public expense procure them the means of returning home, and take charge of effects saved from such wrecked vessels, in lack of an owner or his legal representative. He is also to aid in settling disputes between officers and crews. He is expected to give needful intelligence and aid to naval vessels of his country touching on the coast. A consul has it for his duty to administer on the estate of any citizen of the country which he represents who dies within his consular jurisdiction, in lack of any legal representative. As regards the 'privileges and immunities' of a consul, it is doubtful whether he is in any case exempt from the civil jurisdiction of the state to which he is accredited; though consuls generally have special privileges under local law and usage, such as permission to call in a guard when he requires it for his own safety, or the preservation of discipline; and in countries not inhabited by a population of European stock, he has practically the privileges of an am-

bassador. A consul can perform the acts of a notary-public; the legal fiction being that the consulate is the territory of the country from which the consul is sent.

British consuls are in some cases allowed to trade; in others, they are prohibited from trade. The salary of British consuls-general varies from £300 to £2,000, the average being about £1,000; the salary of a consul varies from £100 to £1,500, and of a vice-consul, from £50 to £800. U. S. consuls are appointed by the pres. with consent of the senate, and give bonds for faithful performance of duty. Usually their payment is by fees for special functions; some have stated salaries, varying greatly with the extent and importance of their duties.

CON'SULATE, in France: supreme magistracy of the French republic; established after the revolution of the 18th Brumaire (q.v.), continuing till the coronation of Napoleon. On the sudden overthrow of the Directory with the constitution of the year III., the members of the Council of the Ancients and the Five Hundred, or rather those of them who approved of, or submitted to, that act of violence on the part of Bonaparte's grenadiers, appointed three consuls —Sièyes, Bonaparte, and Roger Ducos. This approach to a monarchial government was confirmed 1799, Dec. 13, by the constitution of the year VIII., by which Bonaparte was made first consul, with Cambacérès and Lebrun as second and third; each was elected for 10 years, and was re-eligible. The powers of the first consul were made almost absolute. He promulgated the laws, appointed or dismissed ministers, ambassadors, members of the council of state, military and naval officers, and all civil and criminal judges, except justices of peace and members of the court of cassation. His income was fixed at 500,000 francs, and that of his inferior colleagues at 150,000 francs each. Bonaparte took up his residence at the Tuileries, and held a splendid court. By resolutions of the senate, 1802, May, Bonaparte was re-elected for 10 additional years, and in Aug. was made first consul for life. In the appeal made to the nation, out of 3,577,259 votes, 3,568,885 were in favor of Bonaparte. The adulation of the senate and people now knew no limit. Nothing but the imperial name and insignia were wanting to complete the picture of absolutism, and these were supplied 1804, May 18, when Napoleon was made emperor.

CONSULT, v. *kŏn-sŭlt'* [F. *consulter*—from L. *consultārĕ*, to consider maturely: It. *consultare*]: to consider maturely with another; to seek the opinion of another; to ask advice of; to seek for information in, as in books; to have regard to, in acting or judging CONSULT'ING, imp. CONSULT'ED, pp. CONSUL'TER, n. one who. CON'SULTA'TION, n. *-tā'shŭn* [F.—L.]: a meeting of two or more persons for deliberation on some matter. CONSUL'TATIVE, a. *-tă-tĭv* [F. *consultatif*]: having the privilege of consulting.

CONSUME, v. *kŏn-sūm'* [F. *consumer*—from L. *consūmĕrĕ*, to consume—from *con*, *sūmĕrĕ*, to take: It. *consumare*]: to take away completely; to destroy by separa-

ting the parts; to eat or devour; to squander or waste; to spend idly, as time; to become wasted; to bring to utter ruin. CONSU'MING, imp. CONSUMED', pp. *-sūmd'*. CONSU'MER, n. one who. CONSU'MABLE, a. *-sū'mă-bl*, that may be destroyed, wasted, or dissipated, as by fire. CONSUMPTION, n. *kŏn-sŭm'shŭn* [L. *con, sumptus*, taken]: the act of consuming; a wasting away of the body by disease, generally understood of the lungs; the use of the products of industry. CONSUMPT, n. *kŏn'sŭmt*, the use of any product of industry, as the consumpt of grain, or of tea. CONSUMP'TIVE, a. *-sŭm'tĭv*, wasting; exhausting; affected with disease of the lungs. CONSUMP'TIVELY, ad. *-lĭ*. CONSUMP'TIVENESS, n.—SYN. of 'consume': to destroy; absorb; waste; squander; lavish; expend; dissipate; swallow up; ingulf; decay; decline.

CONSUMMATE, a. *kŏn-sŭm'māt* [L. *consummātŭs*, brought about, accomplished—from *con, summa*, the summit, completion: F. *consommer*]: complete in the highest degree; perfect; finished. V. *kŏn'sŭm-māt* or *kŏn-sŭm'-*, to complete; to finish; to effect a purpose. CON'SUMMA'TING, imp. CON'SUMMA'TED, pp. CONSUM'MATELY, ad. *-lĭ*. CON'SUMMA'TION, n. *-mā'shŭn*, completion; end of the present system of things; end of life.

CONSUMPTION: see TUBERCULOSIS.

CONSUMP'TION, in Political Economy: the converse of Production. The word is of very frequent use by political economists, but it has never had a definite meaning attached to it. It may be generally said that everything produced or made by human labor is to be consumed, or to cease in its turn to exist. But there is not only a great difference in the rate at which things are consumed—some going rapidly, while others last for centuries—but there is a consumption which is annihilation or loss, and a consumption which is in reality gain, or an addition to the wealth of the world. Food is an article of production destined to be immediately consumed, but the food of the workingman sustains him while he is producing more than he consumes. A thousand dollars spent in improving two-hundred acres of land, or in building a house, produces something which lasts for many years ere it is consumed or rendered valueless. The same sum spent in raising a wheat crop will seem to be immediately consumed, but it may have in reality been laid out more beneficially than the other, through the process of reproduction. If the thousand dollars laid out on land increases the value of that land so as to make it worth eleven hundred dollars, while the wheat raised by the expenditure of the other thousand is sold for fifteen hundred dollars, there is less consumption in the latter expenditure than the former. If the thousand dollars, on the other hand, be expended on squibs and sky-rockets, the consumption is greater still. The makers of the squibs and sky-rockets no doubt live, but it would tend less to consumption if they lived by making something that would last.

CONSUMPTION, CONSUMPT, CONSUMPTIVE: see under CONSUME.

CONTABESCENCE, n. *kŏn'tă-bĕs'sĕns* [L. *contabĕscens*, wasting away gradually—from *con*, *tabĕsco*, I waste or pine]: in *bot.*, a defective condition of the stamens.

CONTACT, n. *kŏn'tăkt* [F. *contact*—from L. *contactus*, touch, contact—from *con*, *tactus*, touched: It. *contatto*]: the touching or close union of bodies; touch. In *geometry*, two curves are said to have contact at a common point when they have the same tangent at that point. The rate at which the curves separate on leaving the common point determines the *order* of contact. The distance p between them, near the common point, is usually proportional to the second power of the distance d from the common point; this is contact of the first order. But p may in special cases be proportional to d^3, d^4,....; then the contact is of the second, third,....orders. Since p and d are small quantities, the powers d^2, d^3, d^4,.... form a descending series, so that the higher the order the closer the contact. When the order is even the curves not only touch but also cross each other: If a set of circles of different radii are placed tangent to a curve at a given point, it will be found that there is one among them which crosses the curve, and therefore has contact of the second order with it. This is called the osculating circle of the given curve at the given point. A complete discussion of the nature and order of contact requires a knowledge of the differential calculus. See CURVATURE and OSCULATION.

CON'TACT ACTION: a mixture of hydrogen and oxygen gases can be kept for any length of time without change, but if a piece of spongy platinum be introduced into the mixture in a very short time the gases combine with explosion. The platinum, which is found unchanged, is said to have acted by its presence or by contact, and the cause was ascribed to a peculiar force called by Berzelius 'catalytic,' the whole phenomenon being denoted by the term catalysis. There are many other examples of bodies inducing combination or decomposition without themselves apparently altering, but extended study of the whole subject renders it probable that in some cases the neutrality is only in appearance, the catalytic body really undergoing successive combination and decomposition, while in others, as in that given above, a modification of the physical circumstances is produced sufficient to determine the chemical change. There is no necessity, therefore, for assuming the existence of a peculiar force, though in individual instances it may not be at once obvious to what cause the effect is to be ascribed.

CONTACT SENSATION: see SENSATION.

CONTAGION, n. *kŏn-tā'jŭn* [F. *contagion*—from L. *contāgĭōnem*, contact, touch—from *con*, *tangĕrĕ*, to touch: It. *contagione*]: the communication of a disease by contact or touch; the subtle or virulent matter proceeding from the

bodies of diseased persons imparting the same diseases to others—the latter strictly applies to *infection*, and the former to *contagion;* that which propagates evil or mischief. CONTA'GIOUS, a. *-jŭs*, producing disease by contact or near approach; containing that which may be propagated, as mischief or some affection of the mind. CONTA'GIOUSLY, ad. *-lĭ*. CONTA'GIOUSNESS, n. CONTA'GIONIST, n. one who believes in the contagious character of certain diseases.

CONTA'GION: communication of disease from the sick to the healthy, either by direct contact of a part affected with the disease, or through the medium of the excretions and exhalations of the body. Some authorities have employed the term infection (q.v.) to designate this latter method of communication and have correspondingly limited the meaning of the word contagion, but this refinement seems not practically important. The applying of 'infection' to denote the effect of subtle aërial exhalations from a diseased body may be classed as the most reasonable part of the distinction. Such minute particles are now usually regarded as distinct organisms or germs, probably of the nature of plants. The disease so familiar in malarial districts, intermittent and remittent fevers, have been generally regarded as similarly communicated (but see MALARIA). The contagious virus of the plague, smallpox, measles, scarlet fever, and certain other diseases operates to a much more limited distance through the medium of the atmosphere than the miasmata of malarious districts. Breathing the air immediately surrounding a diseased person is said to be necessary for the communication of plague; and approach within two or three yards of him for that of typhus.

The character and nature of all these poisonous effluvia are little understood. They undoubtedly consist, however, in every individual case, of a specific virus; in some cases this is demonstrated to be a minute organism, and, most probably, there is always an organism which is capable of propagating itself where it finds a proper nidus. Antiseptics are substances which arrest the growth of the germs of the disease. A good example of an antiseptic is carbolic acid in weak solutions. The purpose of a disinfectant is to destroy the matter of contagion The disinfectants commonly used are carbolic acid, chloride of lime. Condy's fluid (a solution in water of permanganate of potash), sulphurous acid, obtained from burning sulphur, Burnet's fluid (a solution of chloride of zinc), sulphate of copper (blue vitriol) dissolved in water, and sulphate of iron (copperas), sulphuric acid (oil of vitriol), and hydrochloride acid (spirit of salt)

The diseases arising from miasmata are of a different class from those arising otherwise, since they are not communicated by one person to another. The disease communicated by diseased persons is usually so communicated by the product of the disease itself; for instance, by the matter of the smallpox; and therefore many of these diseases are infectious (or contagious) only when they have

already produced such matter, but not in their earlier periods. In some of them actual contact with the diseased person is necessary for infection, as is the case with the itch, syphilis, hydrophobia, ringworm, etc.; in other diseases even the air seems to convey the infection, as in scarlet fever, measles, etc. The infectious matter of smallpox and scarlet fever may remain attached to clothing for a long time.

A real infection requires always a certain susceptibility of the healthy individual; and many infectious maladies destroy forever this susceptibility of the same contagion in the individual, and accordingly, attack a person only once, as the smallpox, measles, etc. Other contagious diseases do not produce this effect, and may therefore repeatedly attack the same person, as typhus, itch, syphilis, and others. Sometimes one contagious disease destroys the susceptibility for another, as the cowpox for the smallpox. In general, those parts of the body which are covered with the most delicate skin are most susceptible of contagion; and still more so are wounded parts deprived of the epidermis. Against those contagious diseases which are infectious through the medium of the air, precaution may be taken by keeping at the greatest possible distance from the sick, by cleanliness and fearlessness; but most completely by the vigilance of the health officers, by fumigations, etc. Greater security against such contagious diseases as are infectious only in case of contact, can be obtained by means of cleanliness and caution in the use of tobacco pipes, wind-instruments, beds, clothing, and vessels for eating and drinking.

CONTA'GIOUS DISEASES (OF WOMEN), ACTS CONCERNING: acts passed in the Brit. parliament, 1865, '67, and '68 for the seaport and military towns; authorizing a justice of the peace, on the sworn information of a supt. of police that a woman within the indicated area is a common prostitute suffering from venereal disease, to cause her to be examined, and if necessary detained in a hospital from three to nine months. Imprisonment was the penalty for refusing to attend for examination. These acts have always been strongly disapproved of by a large section of the public, being denounced as demoralizing and degrading; while they have been defended on purely sanitary grounds. A select committee of the house of commons on the effect of the acts issued an elaborate report 1882. In the debate on supply, 1883, Mr. Stansfeld's motion, that these acts had neither checked disease nor promoted morality, was carried by a large majority; the vote of supply accordingly was lost. The administration of the acts was then suspended; and the acts themselves were repealed 1886.

CONTAGIUM, n. *kŏn-tā'jĭ-ŭm*, CONTA'GIA, n. plu. *jĭ-a* [L. *contagĭŭm*, a touching, contact—from *con*, together: *tango*, I touch (see CONTAGION)]: the contraction of disease by contact with a diseased person, or by inhalation or contact of germs coming from such a body.

CONTAIN, v. *kŏn-tān'* [OF. *contenir*—from L. *continēre*, to hold or keep together—from *con*, *tenēre*, to hold]: to be able to hold; to have capacity; to comprehend; to hold within limits; in *OE.*, to constrain; to confine. CONTAIN'ING, imp. CONTAINED', pp. *-tānd'*. CONTAIN'ABLE, a. *-ă-bl*, that may be contained.—SYN. of 'contain': to hold; comprise; comprehend; include; embrace; involve; imply; inclose.

CONTAMINATE, v. *kŏn-tăm'ĭ-nāt* [L. *contamĭnātus*, defiled: It. *contaminare*: F. *contaminer*]: to pollute or defile; to render impure; to sully; to taint: ADJ. corrupt by base mixture. CONTAM'INATING, imp. CONTAM'INATED, pp. CONTAM'INA'TION, n. *-nā'shŭn*, pollution; defilement. CONTAM'INATIVE, a. *-nā-tĭv*, tending to make impure. —SYN. of 'contaminate': to taint; corrupt; sully; stain; tarnish.

CONTANGO, n. *kŏn-tăng'gō* [a probable corruption of CONTINGENT: Sp. *contante*, ready money: It. *contante*, counting or reckoning, ready money]: a sum of money, or a percentage, paid for accommodating a buyer in carrying an engagement to pay money for speculative purchases of stock, over to next account-day—a stock exchange term.

CONTANKEROUS, a. *kŏn-tăng'kĕr-ŭs* [originally a slang word]: querulous; very contentious; perverse; more frequently spelled *cantankerous*.

CONTARINI, *kon-tâ-rē'nē:* noble family in Venice, one of the 12 that elected the first Doge. Between 1041 and 1674, seven Doges were furnished by this family, and several of its members were men of note.

AMBROGIO C. was sent as ambassador from Venice to Persia, 1473–77, and gave an account of his travels in his *Viaggi fatti da Vinetia, alla Tana, in Persia, in India, et in Constantinopoli* (Ven. 1487).

CARDINAL GASPARO C. distinguished himself as Venetian ambassador at the court of Charles V., and was papal legate at the diet of Ratisbon, 1541, where he showed great moderation.

GIOVANNI C., born 1549, was one of the most famous painters of his time; he painted the Resurrection, in San Francisco di Paolo's, in Venice.

VINCENZO C., born 1577, had acquired, at the age of 26, such a fame for learning, that the magistrates of Padua, in order to secure him for their university, established a extraordinary professorship of Greek and Latin eloquence.

CONTECK, n. *kŏn'tĕk:* in *OE.*, contest or contention; quarrel.

CONTEMN, v. *kŏn-tĕm'* [L. *contemnĕrĕ*, to value little—from *con*, *temnĕrĕ*, to despise: It. *contennere*]: to look upon as mean and despicable; to despise; to treat with scorn; to reject with disdain. CONTEMN'ING, imp. CONTEMNED', pp. *-tĕmd'*. CONTEMN'ER, n. *-tĕm'ĕr*, one who.—SYN. of 'contemn': to despise; scorn; disdain; spurn; defy; slight; neglect; overlook; underrate.

CONTEMPLATE, v. *kŏn-tĕm′plāt* [L. *contemplātus*, viewed attentively—from *con*, *templum*, a place open to observation on every side: It. *contemplare;* F. *contempler*, to contemplate]: to view with continued attention; to study; to meditate on or ponder over; to intend or design; to muse. CONTEM′PLATING, imp. CONTEM′PLATED, pp. CON′TEMPLA′TOR, n. *-plā′tẽr*, one who. CONTEM′PLATIST, n. *-plă-tĭst*, one who. CON′TEMPLA′TION, n. *-plā′shŭn*, study; meditation; the act of considering anything attentively. CONTEM′PLATIVE, a. *-plă-tĭv*, given to study and reflection; thoughtful. CONTEM′PLATIVELY, ad. *-lĭ*. CONTEM′PLATIVENESS, n.—SYN. of 'contemplate': to regard; observe; perceive; scan; eye; view; look; see; behold; reflect; consider; regard; ponder; dwell on; intend; purpose; plan; design.

CONTEMPORANEOUS, a. *kŏn-tĕm′pō-rā′nĭ-ŭs*, or COTEM′PORA′NEOUS, a. *kō-* [L. *contemporānĕŭs*, a contemporary—from *con*, *tempus*, time; *tempŏris*, of time: F. *contemporain*, contemporary]: living or being at the same time. CONTEM′PORA′NEOUSLY, ad. *-lĭ*. CONTEM′PORA′NEOUSNESS, n., or CONTEM′PORANE′ITY, n. *-pō-ră-nē′ĭ-tĭ*, state of being contemporaneous. CONTEM′PORARY, a. *-pō-ră-rĭ*, or COTEM′PORARY, a. being or existing at the same time: N. one who lives at the same time with another. *Note.*—In the spelling of these words, usage is now in favor of *con* rather than *co*.

CONTEMPT, n. *kŏn-tĕmt′* [OF. *contempt*, scorn—from L. *contemptus*, despised—from *con*, *temnĕrĕ*, to despise]: the act of despising; the state of being despised; the act of viewing or treating as utterly mean, vile, and worthless; disobedience or disrespect to a court, or to a constituted authority; disgrace; shame. CONTEMP′TIBLE, a. *-tĕm′tĭ-bl*, worthy of scorn or disdain; mean; vile; despicable. CONTEMP′TIBLY, ad. *-tĭ-blĭ*. CONTEMP′TIBLENESS n. *-bl-nĕs*, state of being despised; meanness; vileness. CONTEMP′TUOUS, a. *-tĕm′tū-ŭs*, showing or expressing contempt or disdain; haughty; insolent. CONTEMP′TUOUSLY, ad. *-lĭ*. CONTEMP′TUOUSNESS, n. CONTEMPT OF COURT, improper or insulting conduct to a judge in court, or to court officials; a refusal to obey the orders of the court.—SYN. of 'contempt': scorn; disdain; neglect; disregard; slight; mockery; derision; contumely;—of 'contemptible': despicable; abject; piteous; pitiful; pitiable; contemptuous; vile; mean; base; paltry; sorry; worthless, scurrilous;—of 'contemptuous': disdainful; scornful; contumelious; abusive; insulting; cavalier; supercilious; fastidious.

CONTEMPT′, against the ecclesiastical supremacy of the Brit. crown: assuming local ecclesiastical titles under the authority of the court of Rome. It is forbidden under penalties by 10 Geo. IV. c. 7, s. 24, and by 14 and 15 Vict. c. 60.

CONTEMPT, against the title of the Brit. sovereign: see PRÆMUNIRE.

CONTEMPT OF CONGRESS: various acts of resistance or obstruction of the proceedings of either house of

the U. S. congress, or of violation of its rights and dignities, or disobedience of its mandates—the offense being direct or personal, and done at least constructively before its face. Against such offense, congress has power similar to that of a court to vindicate its authority and dignity.

CONTEMPT OF COURT: offense in various form; such as resisting the process of a court; non-payment of costs; obstructing the proceedings; striking, or threatening a judge by drawing a weapon; some cases of misconduct of ministerial officers, or malpractice of attorneys. There is probably no country in which courts of law are not furnished with the means of vindicating their authority and preserving their dignity by calling in the aid of the executive, in certain circumstances, without the formalities usually attending a trial and sentence. Of this the simplest instance is where a judge orders the police to enforce silence, or to clear the court. Contempts done in the face of the court, by directly obstructing its proceedings, may be instantly visited with commitment and fine: see JUDGE. In the United States, the press takes great license in comments on cases pending in courts; this usually passes unobserved by judges, yet must be deemed to be carried often to a reprehensible degree.

CONTEMPT OF PARLIAMENT: see PARLIAMENT.

CONTEND, v. *kŏn-tĕnd'* [F. *contendre*—from L. *contendĕrĕ*, to strain violently—from *con*, *tendĕrĕ*, to stretch: It. *contendere* — *lit.*, to strain or struggle violently]: to strive; to struggle in opposition; to dispute earnestly; to debate; to strive to obtain; to quarrel. CONTEND'ING, imp. CONTEND'ED, pp. CONTEN'DER, n. one who. CONTEN'TION, n. *-tĕn'shŭn* [F. *contention*—from L. *contentĭōnem*, exertion, effort—from L. *tentus*, stretched]: strife; violent struggle or effort to obtain something; quarrel; strife in words. CONTEN'TIOUS, a. *-shŭs*, quarrelsome; given to angry debate; litigious. CONTEN'TIOUSLY, ad. *-lĭ*. CONTEN'TIOUSNESS, n. proneness to quarrelling; turbulence.—SYN. of 'contend': to strive; vie; struggle; endeavor; debate; argue; dispute; discuss; deliberate; oppose; emulate; contest; litigate;—of 'contention': strife; discord; contest; litigation; controversy; quarrel; emulation; competition; debate; disagreement; variance; dissension; feud; conflict; —of 'contentious': pugnacious; quarrelsome; wrangling; peevish; perverse.

CONTENT, a. *kŏn-tĕnt'* [F. *content*—from L. *contentus*, contented, satisfied — from *con*, *tentus*, held, kept within limits: It. *contento*]: *literally*, held or contained within limits; quiet; having a mind easy or satisfied: N. rest or quietness of mind; satisfaction and ease of mind; acquiescence: V. to make quiet; to satisfy the mind; to please; to gratify; CONTENT'ING, imp. CONTENT'ED, pp.: ADJ. satisfied; not repining. CONTENT'EDLY, ad. *-lĭ*, in a quiet and satisfied manner. CONTENT'EDNESS, n. state of being contented. CONTENT'MENT, n. *-mĕnt*, quiet; satisfaction of mind; acquiescence. CONTENT'LESS, a. dissatisfied. CONTENT' and NON-CONTENT', words used by the lords in

their house of parliament to express—the former approval, and the latter disapproval,—the former being equivalent to *ay* or *yes*, and the latter *no*. CONTENTS, n. plu. *kŏn-tĕnts'* or *kŏn'tĕnts*, that which is held or contained within a limit; the heads of a book; an index; measure or capacity.

CONTERMINOUS, a. or COTERMINOUS, a. *kŏn-* or *kō-tĕr'mĭ-nŭs* [L. *contermĭnus*, bordering upon—from *con*, *termĭnus*, a limit or border]· bordering upon; touching at the boundary; contiguous. CONTER'MINAL, a. bordering upon.

CONTEST, v. *kŏn-tĕst'* [F. *contester*—from L. *contestārī*, to call to witness—from *con*, *testis*, a witness: It. *contestare*—*lit.*, to call to witness in opposition to]: to dispute; to struggle or strive earnestly; to litigate; to oppose; to emulate: N. *kŏn'tĕst*, struggle; conflict; dispute. CONTEST'ING, imp. CONTEST'ED, pp.: ADJ. disputed CONTES'TABLE, a. *-tĕs'tă-bl*, that may be called in question or disputed. CON'TESTA'TION, n. *-tā'shŭn*, the act of contesting; joint testimony. CONTEST'INGLY, ad. *-lĭ*.—SYN. of 'contest, v.': to contend; dispute; argue; controvert; debate; litigate; oppose;—of 'contest, n.': conflict; encounter; battle; altercation; strife; disagreement; combat; shock; debate; controversy; difference.

CONTEXT, n. *kŏn'tĕkst* [F. *contexte*—from L. *contextus*, connection—from *con*, *textus*, woven: It. *contesto*—*lit.*, that which is woven together]: the parts in a discourse or book immediately preceding or following the word, sentence, or passage quoted. CONTEX'TURE, n. *-tĕks'tūr* [F.]: the weaving together of parts; the composition of the parts of anything; the character of the component parts of a body; constitution. CONTEX'TURAL, a. *-tū-răl*, pertaining to the contexture. CONTEX'TURED, a. *-tūrd*, woven.

CONTI, *kon'tē*. HOUSE OF: branch of the House of Condé (q.v.).

ARMAND DE BOURBON, first Prince of Conti: 1629-1666; b. Paris; bro. of the great Condé. He took his title from the little town of Conti, five leagues from Amiens. Of a feeble constitution and deformed shape, he was early destined for the priesthood, but the fame of his brother inspired him with military ardor. He commenced his martial career as the opponent of his brother, but soon entered into alliance with him. After 1657, he retired from the world, and gave himself up to devotion. He died at Pezenas.

LOUIS ARMAND, Prince de Conti, Comte de Pezenas, and peer of France: 1661-85; eldest son of Armand de Bourbon. After a short career in arms, he died of smallpox at Fontainebleau. He left no children, and was succeeded by his brother, François Louis.

FRANÇOIS LOUIS, Prince de la Roche-sur-Yon et de Conti: 1664-1709, Feb. 22; bro. of Louis Armand. This was the most remarkable member of the family. Educated under the eyes of the great Condé, he early conceived a passion for bearing arms. His first campaign was made in

Hungary, where he distinguished himself; but having fallen into disgrace with the court, he was banished to Chantilly, with strict orders not to leave it The great Condé, before his death, persuaded Louis XIV. to pardon him. Subsequently, C. served under Duc de Luxembourg, who was warmly attached to him, and took a brilliant part in the victories of Steinkirk and Neerwinden. In 1697, he narrowly escaped being made king of Poland. On his return to France, he was still coldly received by Louis, who, however, was at last forced by disaster to employ him. He received the command of the army of Flanders in 1709, but died in the same year. Massillon pronounced his funeral oration. Saint-Simon, in his celebrated *Mémoires*, thus speaks of him: 'He was the delight of armies, the divinity of the people, the hero of officers, the darling of parliament, and the admiration of the most learned savans.'

Louis François Joseph: 1734-1807; last member of the House of Conti; d. in Spain.

CONTIGUITY, n. *kŏn.tĭ-gū'ĭtĭ* [L. *contigŭŭs*, very near —from *con*, *tango*, I touch: F. *contigu*, contiguous; *contiguïté*, contiguity]: actual contact of bodies; nearness of situation or place. Contig'uous, a. *-tĭg'ū-ŭs*, touching; close together; neighboring; adjoining; adjacent. Contig'uously, ad. *-lĭ*. Contig'uousness, n. *-ŭs-nĕs*, state of contact; close union.

CONTIGUITY, in philosophy and psychology: see Association.

CONTINENT, a. *kŏn'tĭ-nĕnt* [F. *continent*, continent—from L. *contĭnen'tem*, that restrains passions—from *con*, *tenens;* holding: It. *continente*]: restrained in passions; moderate; temperate; abstemious in lawful pleasures; in *OE.*, opposing; restraining. Con'tinently, ad. *-lĭ*. Con'tinence, n. *-nĕns*, or Con'tinency, n. *-nĕn-sĭ* [F. *continence*]: restraint imposed upon desires and passions—applied to men, as *chastity* to women

CONTINENT, n. *kŏn'tĭ-nĕnt* [F. *continent*, the mainland —from L. *contĭnen'tem*, the mainland—from *con*, *tenens*, holding: It. *continente—lit.*, that which contains anything]: a large extent of land containing many countries; the mainland; the countries of the mainland of Europe, especially as distinguished from the British Islands; in *OE.*, that which contains. Con'tinental, a. *-tăl*, pertaining to a continent; pertaining to the countries of the mainland of Europe.—The Anglo-American colonies at the beginning of the revolutionary war assumed the term Continental as opposed to Provincial, calling their first representative assembly the Continental congress. They hoped that Canada would join them, so making good the name.

CON'TINENT: mainland, one of the extended masses of land as distinguished from the minor portions. Though no precise distinction has ever been drawn between a C. and an island, the usage of language has generally recognized five great masses or divisions of land as continents—Europe, Asia, Africa, America, and Australia. Europe, Asia, and

Africa form properly one great C., the only one known to the ancients; the second was discovered by Columbus; and the third, Australia, sometimes called an island, became known at the antipodes of Europe in the beginning of the 17th c. The existence of an antarctic C. has not yet been satisfactorily established. The apparent irregularity in the shape of the continents disappears on nearer examination, and certain uniformities become apparent, the causes of which have long been subjects of speculation. Bacon remarked, that the continents were pointed toward the south polar sea, and presented broad conformations toward the north. J. R. Foster followed up this remark by the generalization, that these southern points are the ends of mountain-ranges, which are continued northward; and that at the e. side of these promontories there are always larger or smaller archipelagos of islands, while the w. side of the continents is indented with large bays.

Not only have attempts been made to reduce the horizontal outlines of the continents to rule, but their vertical dimensions have been examined with the same view. Observation had been confined to ascertaining the heights of individual summits, until Alexander von Humboldt enriched physical geography with a new numerical element, by endeavoring to determine the mean height of continents —i.e., the elevation of the centre of gravity of their mass. He estimated the mean height of Europe at 103 toises (a toise is about 6 ft. 6 in.), of North America at 117, of South America at 177, and of Asia at 180 toises. Laplace had calculated the mean height of all the continents at 1,000 metres; Humboldt found this too great by two-thirds, and gives the height of the centre of gravity of all the continents, except Africa, above the sea-level at 307 metres, or 1,007 feet.

CONTINENTAL CURRENCY: the 'paper money' issued in the United States during the Revolutionary war (1775-1781), by direction of the Continental congress and most of the several states composing the confederation. The general form was as follows: 'This bill entitles the bearer to receive two Spanish milled dollars or the value thereof in gold or silver, according to the resolution of the congress, held at Philadelphia on the 10th day of May A. D. 1775.' The notes were duly signed, numbered in ink, and bore a seal and other devices. Dates were changed as new issues were resolved upon. The forms used by the states were somewhat different, some of them bearing interest, and some having the indorsement of the federal authority. The denominations varied from 16 2-3 cents to $60. New Hampshire and Georgia issued none.

The central government having no power to lay taxes had no other means of providing for the expenses of the war except borrowing, unless the several states supplied funds. The notes were a form of forced loan; and when in 1776 objections to receiving the currency arose among the people, congress passed resolutions condemning those who objected. The issues increased so largely that great

depreciation followed; yet as most of the states had passed legal tender laws, some exceedingly drastic, the conditions were deplorable. In 1778 the notes stood officially at 100 to 13½ in coin; in 1779 at 100 to 3½; in 1781 a rate of 225 to 1, and even 500 and 1,000 to 1 were reported. Old issues were redeemed in new ones, in some cases at the rate of 40 for 1, thus officially repudiating a large part of the obligation; yet the people were compelled by law to accept the old at face value. By 1781 conditions were such that no further issues were attempted, except some re-issues in 1783.

It is not certain how large the total of these issues was. Congress had endeavored to limit the amount to $200,000,000, but this sum was unquestionably exceeded. An estimate that the total was $451,000,000 no doubt included re-issues: new notes exchanged for old. Counterfeiting was easy and hence there were at all times considerable quantities of spurious notes in circulation.

After the war closed attempts were made to have the notes redeemed, but nothing was done until after the adoption of the constitution; an act of 1790, recommended by Secretary of the Treasury Hamilton, provided for paying them at the ratio of $100 paper for $1 coin, if presented within a certain period; this was by later acts extended to the end of 1797. Hamilton estimated that only $2,000,000 would be presented. There is no record of the actual redemptions.

During the existence of the currency as money (1775-81) all manner of devices were recommended, and some adopted, to regulate its value and to fix the prices of commodities and wages. While these were for a time effective locally, they proved useless in the long run, as generally happens when legislatures undertake to interfere with economic laws.

The following statistics relating to this currency are of interest:

	Total Issue.
Continental	$241,552,380
Massachusetts	3,868,000
Rhode Island	714,600
Connecticut	1,516,500
New York	1,161,250
New Jersey	1,618,000
Pennsylvania	4,325,000
Delaware	146,500
Maryland	950,000
Virginia	128,441,000
North Carolina	33,325,000
South Carolina	33,458,926
Total	$45,1077,156

Estimate of Amounts in Circulation.

End of		The Depreciation.
1775	$ 8,000,000	about par.
1776	30,000,000	10 per cent. dis.
1777	48,000,000	1¼ to 4 for 1
1778	110,000,000	4 to 6 for 1
1779	180,000,000	7 to 40 for
1780	250,000,000	40 to 100 for 1
1781	300,000,000	75 to 500 for 1

Jefferson estimated the specie values obtained through the entire issues at $36,367,000. As an indication of the extent of counterfeiting it was recorded that of the two issues of Continental notes of 1777 and 1778, there were destroyed over $19,800,000, when only $10,000,000 had been remitted.

CONTINENTAL SYSTEM: name given to Napoleon's plan for shutting England out from all connection with the continent of Europe, and thus compelling her at least to acknowledge the maritime law established at the peace of Utrecht: see NEUTRALITY. This system began with Napoleon's famous 'Berlin Decree' of 1806, Nov. 21, which declared the British islands in a state of blockade, and prohibited all commerce and correspondence with them; every Englishman found in a country occupied by French troops or by their allies was declared a prisoner of war; all merchandise belonging to an Englishman, lawful prize; and all trade in English goods entirely prohibited. No ship coming direct from England, or from a British colony, was allowed to enter any port; and any ship seeking by false declarations to evade the regulation, was confiscated with its cargo as if British property.

England was not long in making reprisals. By an 'order in council,' issued 1807, Jan. 7, all neutral vessels were prohibited from entering any port belonging to France or her allies, or under her control. Every neutral vessel violating this order was to be confiscated with its cargo. Still more oppressive for neutral commerce was a second order in council, 1807, Nov. 11, by which all harbors and places of France, and her allies in Europe and the colonies, as well as of every country with which England was at war, and from which the English flag was excluded, were placed under the same restrictions as if strictly blockaded. These orders were followed by reprisals on the French side. By the Milan Decree, 1807, Dec. 17, strengthened by a second, 1808, Jan. 11, from the Tuileries, any vessel, of whatever nation, that had been searched by an English ship, had submitted to be sent on a voyage to England, or paid any duty to the English government, was to be declared *denationalized*, and treated as English. In order the more effectually to annihilate English commerce, there appeared, 1810, Aug. 3, the tariff of Trianon for colonial goods; this was extended by a decree Sep. 12, and on Oct. 18, followed the Decree of Fontainebleau, ordering the burning of all English goods; an order which was to be carried out with more or less modification in all countries connected with France.

The consequence of the continental system was undoubtedly the springing up on the continent of many branches of manufacture to the prejudice of England; on the other hand, the price of foreign produce rose to an extraordinary height on the continent of Europe, enabling a few commercial men to make fortunes, but sensibly affecting the daily comfort of the middle classes. This

violent interruption of human intercourse and sociability was an unnatural condition, which could not last long, and could serve only to strengthen the hatred of Europe against French tyranny. Accordingly with the breaking up of Napoleon's power, the continental system fell to the ground. See ORDERS IN COUNCIL.

CONTINGENT, a. *kŏn-tĭn'jĕnt* [F. *contingent*—from L. *contin'gens* or *contingen'tem*, touching—from *con*, *tangĕrĕ*, to touch: It. *contingere*, to happen, to fall out—*lit.*, touching]: happening or falling out by chance; depending on something else; uncertain; incidental; casual: N. a thing which happens by chance; a quota; a suitable share; proportion; a fortuitous event; in the *army*, applied to the sum paid monthly to each captain of a troop, company, etc., to defray incidental charges, as stationery, care of arms, and the like; quota of troops furnished to the common army by each member of an alliance or confederation of states: the word was applied especially to the proportions contributed by the several German states to the army of the confederation, which has given place to the empire: see GERMANY. CONTIN'GENCE, n. *-jĕns*, or CONTIN'GENCY, a. *-jĕn-sĭ* [F. *contingence*]: the quality of being contingent; a possible event; an accidental possibility; casualty; in *law*, an event, the occurrence of which, though uncertain, is sufficiently probable to be provided for. CONTIN'GENTLY, ad. *-jĕnt-lĭ*, accidentally; without design.—SYN. of 'contingent, a.': casual; accidental; incidental; occasional; fortuitous; chance.

CONTINUE, v. *kŏn-tĭn'ū* [F. *continuer*—from L. *continŭārĕ*, to join one thing to another in uninterrupted succession—from *con*, *tenērĕ*, to hold: It. *continuare*—*lit.*, to join one thing to another in uninterrupted succession]: to extend from one thing to another; to abide or remain in a state or place; to endure; to protract; to persevere in. CONTIN'UING, imp.: ADJ. permanent; abiding. CONTIN'UED, pp. *-ūd:* ADJ. uninterrupted. CONTIN'UER, n. *-ū-ėr*, one who. CONTIN'UATOR, n. *-ā-tėr*, one who continues or keeps up a series or succession. CONTIN'UABLE, a. *-ū-ă-bl*, capable of being continued. CONTIN'UEDLY, ad. *-ūd-lĭ*, without ceasing. CONTIN'UOUS, a. *ū-ŭs* [F. *continu*—from L. *continŭŭs*, continuous]: uninterrupted; joined without intervening space; in *bot.*, without joints or articulations. CONTIN'UOUSLY, ad. *-lĭ*. CON'TINU'ITY, n. *-nū'ĭ-tĭ*, uninterrupted connection; close union of parts; cohesion. LAW OF CONTINUITY, Leibnitz's principle that nothing can pass from one state into another without passing through all the states intermediate. CONTIN'UAL, a. *-ū-ăl*, without interruption or cessation; unceasing; perpetual; constant. CONTIN'UALLY, ad. *-lĭ*, without pause or interruption. CONTIN'UANCE, n. *-ăns*, duration; perseverance; residence; uninterrupted succession. CONTIN'UA'TION, n. *-ū-ā'shŭn* [F.—L.]: uninterrupted succession; carrying on to a further point, as a line or a story. CONTIN'UATIVE, a. *-ū-ā-tĭv*, that continues: N. that which continues or endures. CON-

TIN'UATE, a. *-ū-āt*, in *OE.*, uninterrupted; unbroken. CONTIN'UATELY, ad. without interruption. CONTINUOUS BEARINGS, sleepers laid longitudinally under the rails of a railway, instead of across the way. CONTINUOUS RAIL, a rail made in sections with a longitudinal vertical joint, and the sections laid together, breaking joint.—SYN. of 'continue': to persevere; persist; abide; stay; remain; endure; last; prolong; protract;—of 'continual': constant; continuous; incessant; uninterrupted; unintermitted; lasting; abiding.

CONTIN'UED FRACTIONS: see FRACTIONS.

CONTINUUM, *kŏn-tĭn'ū-ŭm* [F. *continu.* L. *continuus*, uninterrupted, from *con-tinere*, to hold together]: any system which permits progression without interruption. A universal continuum appears in space where progression is uninterrupted in all directions. Time is a one-dimensional continuum capable of geometrical representation by a line. Sense qualities, such as those of color, tone, and taste are capable of arrangement in systems or qualitative continua. The whole of individual conscious life has been described as a continuum.

CONTOR'NIATE, *kŏn-tawr'nĭ-āt* [see CONTOUR]: term applied to a class of antique medals, which have a deep line cut round the edge, like a furrow.

CONTORT, v. *kŏn-tôrt'* [L. *contortus*, intricate, obscure —from *con*, *tortus*, twisted: It. *contorto*]: to twist together; to pull awry; to writhe. CONTORT'ING, imp. CONTORT'ED, pp.: ADJ. twisted together; twisted back upon itself; arranged so as to overlap each other. CONTOR'TION, n. *-tôr'shŭn*, [F.—L.]: a twist or twisting; a wresting; a wry motion; a wresting or twisting of a part of the body out of its natural place, as the muscles of the face or a limb. CONTORTIVE, a. *kŏn-tôr'tĭv*, applied to the parts of a single whorl placed in a circle, each exhibiting a torsion of its axis.

CONTORTUPLICATE, a. *kŏn'tôr-tū'plĭ-kāt* [L. *contortus*, twisted; *plĭcātus*, folded]: in *bot.*, turned back on itself; twisted and folded in plaits.

CONTOUR, n. *kŏn-tôr'* [F. *contour;* It. *contorno*, circuit, outline—from L. *con*, and F. *tour;* It. *torno;* L. *tornus;* Gr. *tornos*, a lathe]: the outline; the line that bounds or defines a figure or surface. CONTOUR-LINES, lines on a map passing through all points at the same altitude—for example, at 100 ft., 200 ft., etc.

CONTRA, a. or ad. *kŏn'tră* [L.]: on the other hand; on the contrary; opposite; a common prefix, with its form *counter*, signifying against; in opposition; in *music*, opposite (lower), and applied to the alto and tenor parts when they form the lowest part in the harmony. When a part lower than the usual base is employed, it is called contrabasso. In organ-building, contra indicates that a certain stop, or register of pipes, is an octave lower than the usual pitch. The bookkeeper's term *per contra* indicates that two entries of opposite character are made at the same time

CONTRABAND—CONTRABAND OF WAR.

CONTRABAND, a. *kŏn'tră-bănd'* [It. *contrabbando*, illegal traffic—from L. *contra*, against, and mid. L. *bannum*, a proclamation]: contrary to proclamation, treaty, or law; prohibited: N. prohibition of trading contrary to law; prohibited goods; illegal traffic with a belligerent power, especially in arms or material. CON'TRABAN'DIST, n. one who traffics in prohibited goods; a smuggler; also CON'TRABANDIS'TA [Sp.].

CON'TRABAND OF WAR: name applied to certain commodities, or the rules relating to them, during hostilities between states which acknowledge what are called the laws of nations. One such law is, that neutral nations must not carry on, for the advantage of either of the belligerent powers, any branches of commerce from which they are excluded in time of peace. Another is, that, such articles as pertain to military or naval warfare—guns, ammunition, and stores of all kinds, shall be deemed contraband of war. Unless there are special treaties, defining exactly what articles are contraband of war, the interpretation of this law often leads to much embarrassment. Another law insisted on by England during her last European war was, that each belligerent shall have a right to visit and examine neutral ships, to see whether they carry any articles which are contraband of war, and which seem likely to be intended for the enemy. A neutral state may carry on ordinary trade with either belligerent, except when prevented by blockade (see BLOCKADE); but the ships, according to the above rules, must not contain articles contraband of war; nor must a conterminous land frontier be crossed by such commodities. If a merchant evades these rules, he does so at his own risk; his merchandise may be seized, and his own government will not protect him. By the law and practice of nations, it is for the admiralty court of the capturing power to decide what is or what is not contraband of war. Upon such questions it is the province of this tribunal to adjudicate; and from its final judgment there is no appeal. At various times, discussions have arisen whether corn, hay, or coal, can ever be included in the list of articles contraband of war; they are obviously articles of peaceful commerce, but they are also essential to the maintenance of an army, and sometimes a supply would give one belligerent a great advantage over the other. Especially is this the case in reference to coal, in the present age of war steamers, so that there has arisen a distinction between absolute and occasional contraband, the commodities just mentioned being occasional. The United States Naval Code declares the following to be conditionally contraband: 'Coal, when destined for a naval station, or a ship or ships of the enemy; materials for the construction of railways or telegraphs, and money, when such materials or money are destined for the enemy's forces; provisions, when actually destined for the enemy's military or naval forces.' Such a list might be extended by including clothing, balloons, bicycles, barbed wire, or any other articles used in warfare and destined for a

belligerent. Gen. B. F. Butler soon after the outbreak of the Civil War solved the question of the status of southern negroes, who had taken refuge with the Union army and were demanded back by their masters, by asserting that they were contraband of war, a claim with little legal basis, but of much convenience to the Federal authorities. See INTERNATIONAL LAW; NEUTRALITY.—Contraband in commerce depends upon the special laws of each country: see SMUGGLING.

CONTRA BASS, or VIOLONE′: largest species of stringed instrument; commonly called the double bass. In Britain, this class of instrument has three strings, the lowest being A, a minor third below the low C of the violoncello; the next is a fourth above, viz., D; and the highest is G, a fourth above D. This manner of stringing is defective, as all the great masters have written for the contra bass down to E, for which reason the German instruments all have four strings, the lowest a fourth below the British low A.—Contra bass is the name also of an organ stop of 16 ft. pitch.

CONTRACT, n. *kŏn′trăkt* [OF. *contract*, a contract, a bargain—from L. *contractus*, an agreement—from *con*, *tractus*, drawn or dragged: It. *contratto:* F. *contrat—lit.*, a drawing or dragging together]: an agreement; a mutual promise; a bargain; the writing which contains the terms and conditions of the agreement between two or more persons (see CONSENT); an act of betrothment: V. *kŏn-trăkt′*, to draw closer together; to draw into a less compass or bulk; to abridge; to wrinkle, as the brow; to betroth; to acquire, as a habit; to incur, as a debt; to bring on, as a disease; to bargain; to shrink or become shorter. CONTRAC′TING, imp. *-trăk′tĭng.* CONTRAC′TED, pp. CONTRAC′TOR, n. *-tėr*, one who agrees to do a certain service or work at a stipulated price or rate. CONTRAC′TION, n. *-shŭn* [F.—L.]: the act of drawing together or shortening; the thing shortened or reduced. CONTRAC′TEDLY, *-tĕd-lĭ.* CONTRAC′TEDNESS, n. CONTRAC′TIBLE, a. *-tĭ-bl*, having the possibility of contraction. CONTRAC′TIBIL′ITY, n. *-bĭl′ĭ-tĭ*, the quality of being able to be contracted. CONTRAC′TIBLENESS, n. *-bl-nĕs*, the quality of being contractible. CONTRAC′TILE, a. *-tĭl*, having the power of shortening; tending to contract. CON′TRACTIL′ITY, n. *-tĭl′ĭ-tĭ*, the inherent quality or force by which some bodies shrink or contract, their particles which have been separated by force, resuming their former nearness when the force ceases; tendency to contract: a power in animal muscles by which they effect movement of the limbs: CONTRACTED VEIN, a term denoting the diminution which takes place in the diameter of a stream of water issuing from a vessel at a short distance from the discharging aperture; due to the increase of velocity as the particles descend.—SYN. of 'contract, v.': to abridge; abbreviate; curtail; shorten; epitomize; narrow; condense; lessen; reduce; confine; incur; affiance; shrink;—of 'contract, n.': agreement; covenant, bargain; compact; stipulation; obligation; arrangement.

CONTRA-DANCE, n. *kŏn'tră-dăns* [L. *contra*, and *dance*]: a dance in which the partners are arranged in opposite lines: F. *contre-danse*, corrupted into *country-dance*.

CONTRADICT, v. *kŏn'tră-dikt'* [L. *contradic'tus*, spoken against, contradicted; *contradictĭōnem*, a speaking against, a reply—from *contra*, *dictus*, spoken: It. *contradizione;* F. *contradiction*, contradiction—*lit.*, to speak against]: to oppose by words; to assert the contrary of what has been said; to gainsay; to impugn. CON'TRADIC'TING, imp. CON'TRADIC'TED, pp. CON'TRADIC'TER, n. *-tėr*, one who. CON'TRADIC'TION, n. *-dĭk'shŭn*, a contrary statement; an assertion opposed to what has been said; inconsistency with itself; opposition in any way. CON'TRADIC'TIVE, a. *-dĭk'tĭv*, containing contradiction; adverse. CON'TRADIC'TIVELY, ad. *-lĭ*. CON'TRADIC'TIOUS, a. *-dĭk'shŭs*, inclined to contradict; filled with contradictions; inconsistent. CON'TRADIC'TIOUSNESS, n. CON'TRADIC'TORY, a. *-tėr-ĭ*, affirming the contrary; containing a denial of what has been asserted; inconsistent: N. in *logic*, a proposition opposed to another in all its terms. CON'TRADIC'TORILY, ad. *-lĭ*.

CONTRADISTINCTIVE, a. *kŏn'tră-dĭs-tĭnk'tĭv* [L. *contra*, opposite, and *distinctive*]: distinguished or marked by opposite qualities. CON'TRADISTINC'TION, n. *-tĭnk'shŭn*, distinction by opposite qualities; opposition.

CONTRADISTINGUISH, v. *kŏn'tră-dĭs-tĭng'gwĭsh* [L. *contra*, opposite, and *distinguish*]: to explain not only by different but by opposite qualities. CON'TRADISTIN'GUISHING, imp. CON'TRADISTIN'GUISHED, pp. *-gwĭsht*.

CONTRA-INDICATE, v. *kŏn'tră-ĭn'dĭ-kāt* [L. *contra*, opposite, and *indicate*]: in *med.*, to point out some peculiar method of cure contrary to the usual treatment. CON'TRA-IN'DICANT, n. *-kănt*. CON'TRA-IN'DICA'TION, a symptom in disorder forbidding the usual treatment.

CONTRALTO, n. *kŏn-trăl'tō*, CONTRAL'TOES, n. plu. *-tōz*, or CONTRAL'TI, n. plu. *-tī* [It. *contralto*—from L. *contra*, *altus*, high]: in harmonized music, the counter-tenor or alto; one of the middle parts; the lowest kind of female voice, practically identical with the male *alto*.

CONTRA-POSITION, n. *kŏn'tră-pō-zish'ŭn* [L. *contra*, opposite, and *position*]: a placing over against; in *logic*, conversion in particular propositions.

CONTRAPUNTAL, a. *kŏn'tră-pŭn'tăl* [It. *contrappunto*, counterpoint in music (see COUNTERPOINT)]: pertaining to counterpoint. CON'TRAPUN'TIST, n. one skilled in counterpoint.

CONTRARY, a. *kŏn'tră-rĭ* [F. *contraire*—from L. *contrārĭŭs*, lying or being over against—from *contra*, against: It. *contrario*]: adverse; opposite; contradictory; repugnant; in an opposite direction: N. a thing of opposite qualities. CON'TRARIES, n. plu. *-rĭz*, opposites; propositions that destroy each other. CONTRARY TO, opposite to. ON THE CONTRARY, in opposition; on the other side. TO THE CONTRARY, to an opposite purpose or intent. CON'TRARI'ETY, n.

-rī'ĭ-tĭ [F. *contrariété*]: some inherent quality or principle which creates opposition; repugnance; inconsistency. CON'TRARILY, ad. *-trā-rĭ-lĭ.* CON'TRARINESS, n. CON'TRARIWISE, conj. ad. *-rĭ-wīz,* on the other hand; conversely. CONTRARY, v. *kŏn-trā'rĭ,* in *OE.,* to oppose; to contradict CONTRA'RYING, imp. CONTRARIED, pp. *kŏn-trā'rĭd.*—SYN. of 'contrariety': inconsistency; repugnance; diversity; contrast;—of 'contrary, a.': adverse; hostile; inconsistent; discordant; inimical.

CONTRARY: in logic terms or propositions are *contrary* if they are incompatible or in the extreme of opposition. Logical contraries cannot both be true *in the same relation.* For instance, 'good' and 'bad' are contraries; they cannot both be predicated of the same person in the same relation; but both may be false, when attributed to a person, if there be a middle state between 'goodness' and 'badness.' In the opposition of propositions, A. and E., 'All S is P' and 'No S is P,' are contraries, for they involve the greatest possible degree of opposition. If one is true the other is false but both may be false; A may be Q. Contrary opposition is too wide and vague to be of much logical value. Opposition must be *specific* or *definite* negation to have full logical value. It must become *specified difference.* For instance, any other quality, wise, foolish, stylish, healthy, etc., might be regarded as a contrary of good, if predicated of a man in the same relation. What we need to know is the specific kind of badness in the case that excludes a specific kind of goodness, *i.e.,* that kind of opposition which excludes a middle ground. See FIGURE IN LOGIC.

CONTRAST, n. *kŏn'trăst* [F. *contraste,* opposition—from It. *contrastare,* to oppose—from L. *contra,* against; *stārĕ,* to stand]: opposition or difference of qualities made manifest by direct comparison; opposition of outline or color to increase effect: V. *kŏn-trăst',* to oppose different things, qualities, or conditions to each other, that, by comparison, the superior excellence of one of them may be seen; to set things of a like kind in opposition, or side by side, in order that the superiority of one of them may be exhibited in a more striking point of view. CONTRAST'ING, imp. CONTRAST'ED, pp.—SYN. of 'contrast, n.': difference; variety; variation; distinction; diversity; contrariety; disagreement.

CONTRAST (color and brightness)): refers to the reciprocal effects upon visual sensations exerted by simultaneous or successive stimulation of the eye. Simultaneous contrast accounts for the effect produced upon the color or brightness of an object by adjacent and neighboring objects. Every color (or brightness) tends to induce in neighboring visual areas its complementary or antagonistic color (or brightness); thus under certain conditions red induces upon a neutral (grey) surface the contrast-color bluish green, yellow induces blue, white black and black white, *etc.* In successive contrast, the color (or

brightness) of a surface is similarly affected by previous stimulation; a grey surface, *e.g.*, looks yellow if the exposed part of the retina has just previously been stimulated by blue; light, bluish green if the antecedent stimulus has been red, *etc.*, (see after-image). It is generally held that both simultaneous and successive contrast depend, primarily, upon physiological processes excited by light, within the retina. The term contrast should, in strictness, be reserved exclusively for the 'simultaneous' form.

CONTRATE-WHEEL, n. *kŏn'trāt-hwēl* [L. *contra*, against, opposite, and *wheel*]: in a *watch*, a wheel, the teeth and hoop of which lie contrary to the other wheels, or parallel to their axis; also CROWN-WHEEL.

CONTRAVALLATION, n. *kŏn'tră-văl-lā'shŭn* [L. *contra*, opposite; *vallum*, a wall, a rampart]: in *fort.*, a trench guarded by a parapet, formed to secure the besiegers from the sallies of the besieged.

CONTRAVENE, v. *kŏn'tră-vēn'* [F. *contrevenir*, to offend or transgress—from L. *contra*, opposite; *venīrĕ*, to come: It. *contravvenire—lit.*, to come opposite or against]: to obstruct in operation; to oppose; to defeat; to do anything in opposition to the provisions of a law. CON'TRAVE'NING, imp. CON'TRAVENED', pp. *-vēnd'*. CON'TRAVE'NER, n. one who. CON'TRAVEN'TION, n. *-vĕn'shŭn* [F.—L.]: obstruction; a defeating of the operation or effect, as of a law or treaty: in *Scottish law*, see LAWBURROWS.—SYN. of 'contravene': to contradict; nullify; defeat; cross; obstruct; oppose; transgress.

CONTRAVERSION, n. *kŏn'tră-vėr'shŭn* [L. *contra*, opposite; *versus*, turned]: a turning to the opposite side.

CONTRAYERVA, *kŏn-tra-yėr'va:* medicine formerly in much repute against low fevers, and as a mild stimulant and diaphoretic, and still used in some countries. It consists of the root-stocks (rhizomes) of different species of *Dorstenia*, a tropical American plant of the nat. ord. *Moraceæ*. The genus is remarkable for the plane receptacle in which the numerous small flowers are fixed; the male flowers in superficial depressions, the female flowers in deep sockets. The flowers have neither calyx nor corolla. The fruit consists of *achenia*, imbedded in the fleshy receptacle from which they are projected by elastic force when ripe. *D. Contrayerva* is a perennial plant, with palmate leaves, and somewhat quadrangular receptacles. Its root-stock is knotty, 1–2 inches long, about half an inch thick, reddish-brown, pale within, sending out on all sides many slender fibres (roots), which are generally loaded with small brown knots. It has a peculiar aromatic, overpowering smell, and a somewhat astringent, warm, bitterish taste. It does not keep well. It contains so much mucilage, that a decoction of it will not pass through a filter.—*D. Brasiliensis*, stemless species, with oblong, heart-shaped leaves and circular receptacle, native of the W. Indies and Brazil, has similar properties, but is said to be more energetic, and furnishes the contray-

erva of commerce. Other species possess similar properties. They have been represented as efficacious against serpent-bites, and hence the name contrayerva, a *counter-poison.*

CONTRERAS, Battle of: (Mexican name, *Padierna*), in the Mexican war 1847, Aug. 20. At Churubusco, the main road south from the City of Mexico is joined from the southwest by another, running to the hills beyond the hamlet of Contreras. This is about 12 miles from the city; a mile nearer the latter is the hamlet of Padierna. Both villages are on the same small stream; and each is about four miles northwest of San Augustin on the main road, to which the American army had advanced. Just west of Padierna, rising from the banks of the stream, is a ridge called Pelón (Bald) Cuauhtitlan, whose northern side is encircled by another brook, joining the first half a mile north of Padierna. The road to Mexico city winds around the east flank of the ridge, crosses the brook from Padierna; and crosses the other brook at Auzaldo; west of this, reached by a bridle-path across a third brook, is the village of San Geronimo; while the road keeps on north, across this third and a fourth brook, to the important village of San Angel. Between San Augustin and the first stream lies a field of *pedregal* (rough volcanic rock), four miles wide and running several miles north; it had a wagon road for a mile and a half, but the rest was only practicable for infantry picking their way in open order. The Mexican general, Valencia, with the 'Veterans of the North,' forming the right of Santa Anna's army, had made his headquarters at San Angel on the 17th; and he decided to occupy and fortify Pelón Cuauhtitlan, two miles southwest, to block the road to the capital skirting it. Powerful batteries were placed to command this and sweep the pedregal; and some 7,000 men were concentrated about the ridge, and facing Auzaldo and San Geronimo. Santa Anna, apprehensive for his position on the main road, ordered Valencia to retire to Churubusco; but Valencia refused. On the 19th Scott, at San Augustin, ordered a road leveled across the rest of the pedregal to Padierna; Twiggs and Pillow to check the enemy meanwhile. When this engagement was sharply in progress, Bennet Riley's brigade, shortly followed by P. F. Smith's, moved north and west across the pedregal and a stony hillock called Zacatepetl; crossed the streams and the San Angel road far in rear of the bridge, driving off in a fierce running fight the Mexican troops which attempted to bar the way; and quartered themselves at San Geronimo in the hills north of the ridge. Valencia sent for reinforcements to Santa Anna, who brought a division to the hill of Toro, north of San Geronimo, and had the American brigades in a helpless trap if he chose, between his forces on the north and Valencia's on the south; but he did nothing, and at nightfall fell back to San Angel without notifying Valencia. At 2·30 A.M. of the 20th, a dismal morning of cold, rain, and fog, Smith and Riley moved southwest through the steep, gul-

lied, slippery streets of San Geronimo, and unperceived, gained positions southwest of the ridge on the right flank of Valencia's lines, which fronted to the pedregal and Padierna; Smith on a height facing the ridge, Riley masked by a ravine, and Cadwalader east along the ravine, which lay between the ridge and Contreras. Meantime a strong diversion was made by an assault on Padierna and along the pedregal. These preparations were made with the greatest strategic skill, and carried out with the utmost courage and tenacity; but most of them were hardly needed, for the battle was won by a single impetuous onslaught of Riley's troops against Valencia's main batteries on the ridge, when the 'Veterans of the North' broke and scattered like sheep. The battle was over in 17 minutes, and the Mexican army a routed mob, in face of a force numbering but a fraction of their own. Shields, who had taken Smith's place at San Geronimo, marched rapidly to Auzaldo to cut off the retreat; but a portion of the army escaped in wild flight toward Churubusco along the San Angel road, while the rest plunged in disorder down the steep flanks of San Geronimo, leaving all impediments behind. No more brilliant victory was won in the war. Scott had not over 4,500 men in sight, to Valencia's 7,000, and Santa Anna's 12,000 within supporting distance; and the natural and artificial defenses should have made the Mexican positions impregnable. The latter lost 700 killed and wounded, and 813 prisoners, including 88 officers, four of them generals; 22 brass cannon, vast quantities of small arms and ammunition, and many hundreds of pack-mules and horses. The American loss was 60 killed and wounded. This rout contributed materially to the winning of Churubusco. Consult: Wilcox, *History of the Mexican War;* Wright, *Life of Scott;* Scott, *Autobiography.*

CONTRETEMPS, n. *kŏng'tr-tâng* [F.—from L. *contra*, against; *tempus*, time]: an unexpected circumstance or event which produces confusion.

CONTRIBUTE, v. *kŏn-trĭb'ūt* [L. *contribūtus*, contributed—from *con*, *tribu'ĕrĕ*, to grant or give: It. *contribuire.* F. *contribuer*]: to give or grant in common with others, as to a common stock; to pay a share; to give a part or share; to impart aid or influence to a common purpose. CONTRIB'UTING, imp. CONTRIB'UTED, pp. CONTRIB'UTABLE, a. *-tă-bl.* CONTRIB'UTARY, a. *tĕr-ĭ*, paying tribute to the same sovereign. CONTRIB'UTOR, n. one who. CON'TRIBU'TION, n. *-trĭ-bū'shŭn* [F. *contribution*—from L. *contrĭbūtĭōnem*]: anything given to a common stock; the payment of each man's share of some common expense; the act of imparting or lending aid or influence for a common purpose. CONTRIB'UTIVE, a. *-trĭb'ū-tĭv*, tending to contribute; having the power or quality of partly promoting any purpose. CONTRIB'UTORY, a. *-tĕr-ĭ*, promoting the same end; bringing aid to the same stock or purpose. In *law*, CONTRIBUTORY NEGLIGENCE is plaintiff's failure to take such

care of himself or his property as might have averted damage. If proved, it diminishes the liability of the defendant.

CONTRITE, a. *kŏn'trīt* [L. *contrītus*, bruised, much used—from *con*, *trītus*, rubbed: It. *contrito;* F. *contrit*, contrite—*lit.*, bruised or worn, as with sorrow]: deeply affected with grief and sorrow for having offended God; penitent; humble. CONTRITE'LY, ad. *-lĭ*. CONTRI'TION, n. *-trĭsh'ŭn* [F. *contrition*—from L. *contrītĭōnem*]: act of rubbing or grinding to powder; deep sorrow; penitence; grief of heart for sin. *Note.*—In theology, 'contrite' is, sorrowful for sin from the desire of pleasing God from love of Him; while 'attrite' is, sorrowful for sin from dread of punishment.—SYN. of 'contrite': penitent; repentant; humble; sorrowful;—of 'contrition': penitence; repentance; compunction; remorse; regret; humiliation.

CONTRIVE, v. *kŏn-trīv'* [F. *controuver*, to devise—from L. *con*, and F. *trouver*, to find: OF. *trover;* Prov. *trobar*—from mid. L. *turbārĕ*, to move, to seek for: It. *trovare*, to invent or seek out]: to plan out; to frame or devise; to scheme. CONTRI'VING, imp. CONTRIVED', pp. *-trīvd'*. CONTRI'VER, n. one who. CONTRI'VABLE, a. *-vă-bl*, capable of being planned or devised. CONTRI'VANCE, n. *-trī'văns*, the act of planning or devising; the thing planned or devised; a scheme.—SYN. of 'contrive': to devise; invent; concert; manage; discover; plan; plot; project; scheme;—of 'contrivance': device; plan; project; design; invention; shift; machination; artifice; resource.

CONTRIVE, v. *kŏn-trīv'* [L. *contrīvī*, I have worn by rubbing, I have wasted—from *con*, *tĕro*, I rub or grind]: in *OE.*, to wear away; to waste; to spend.

CONTROL, v. *kŏn-trōl'* [F. *contrôle*, a register, a counter-roll—from OF. *contre-rôle*, the copy of a roll of accounts used to verify the official or first roll—from *contre*, against; *rôle*, a roll (see COMPT)]: to check by a contra-account; to restrain; to govern; to subject to authority: N. check; restraint; power; command; that which restrains, as *Board of Control.* CONTROL'LING, imp. CONTROLLED', pp. *-trōld'*. CONTROL'LER, n. [F. *contrôleur*, a comptroller—from mid. L. *contrarŏtŭlātor*, one who examined and checked the public accounts]: spelled also COMPTROLLER, one who; in the *army*, one of the highest officers in the control department. CONTROL'LABLE, a. *-lă-bl*, that may be checked or restrained. CONTROL'LERSHIP, n. the office of a controller. CONTROL DEPARTMENT, in the British *army*, the department which performs all the administrative duties, such as supply, transport, and all other non-combatant duties, except educational and scientific.—SYN. of 'control, n.': charge; care; management; administration; government; direction; command: check; restraint —of 'control, v.': to restrain; check; curb; rule; govern; direct; counteract; overpower.

CONTROLLER, ELECTRIC: a device for varying the speed, power and direction of rotation of an electric

motor, comprising a series of resistances combined with switching mechanism which operates to vary the resistance of the motor circuit and thereby change the quantity of current passing through it which produces the change in speed or power. Also the switching mechanism may be used to change the connections from the supply circuit to the motor and thereby reverse the direction of rotation.

CONTROVERT, v. *kŏn'trŏ-vėrt* [It. *controvertere*, to controvert—from L. *contra*, *vertĕrĕ*, to turn; *versus*, turned]: to dispute; to contend against in words or writing; to deny and attempt to confute or disprove. CON'TROVERT'ING, imp. CON'TROVERT'ED, pp. CON'TROVER'TIBLE, a. *-tĭbl*, disputable. CON'TROVER'TIBLY, ad. *-tĭ-blĭ*. CON'TROVERSY, n. *-vėr-sĭ* [F. *controverse*, controversy—from L. *controversĭă*, quarrel: L. *contra*, *versus*, turned]: debate or dispute, usually carried on in writing; an agitation of contraryopinions; strife. CON'TROVER'SIAL, a. *-vėr'shăl*, relating to disputes. CON'TROVER'SIALLY, ad. *-shăl-lĭ*. CON'TROVER'SIALIST, n. *-ĭst*, a disputant; one who. CON'TROVERSE, n. *-vėrs*, in *OE.*, controversy.—SYN. of 'controversy':contest; dispute; debate;disputation; argument; wrangle; hostility; quarrel; gainsaying; contention; discussion.

CONTUMACIOUS, a. *kŏn'tū-mā'shŭs* [L. *contŭmācem*, haughty, obstinate; *contumācĭăm*, haughtiness, obstinacy—from L. *con*, *tumērĕ*, to swell, to be puffed up: It. *contumacia:* F. *contumace—lit.*, swelled or puffed up against]: stubborn; perverse; unyielding; disobedient to lawful authority. CON'TUMA'CIOUSLY, ad. *-lĭ*. CON'TUMA'CIOUSNESS, n. *-shŭs-nĕs*. CON'TUMACY, n. *-mă-sĭ*, stubbornness; contempt of lawful authority; disobedience: in *Scottish law*, equivalent to non-appearance (see DECREE IN ABSENCE).—SYN. of 'contumacious'; obdurate; hardened; callous; obstinate; pertinacious; stubborn; perverse; unyielding; proud; headstrong; inflexible; haughty.

CONTUMELIOUS, a. *kŏn'tū-mē'lĭ-ŭs* [L. *contumē lĭōsus*, full of abuse; *contŭmēlĭă*, a bitter taunt, an affront—from *con*, *tumērĕ*, to swell: It. *contumelia—lit.*, swelling in bitter taunts against]: insolent; contemptuous; haughtily reproachful; rude and sarcastic in speech. CON'TUME'LIOUSLY, ad. *-lĭ*. CON'TUME'LIOUSNESS, n. the quality of being contumelious. CON'TUMELY, n. *-mĕl-ĭ* [F. *contumelie*, reproach—from L. *contumēlĭă*, insult]: insolence; excessive rudeness in order to affront; contemptuous language.

CONTUSE, v. *kŏn-tūz'* [L. *contūsum*, a bruise—from *con*, *tūsus*, beaten: It. *contuso;* F. *contus*, bruised]: to injure the flesh of the body by beating; to bruise; to beat; to bruise or injure any fleshy part of the body without breaking the skin. CONTU'SING, imp. CONTUSED', pp. *-tūzd*. CONTU'SION, n. *-tū'zhŭn* [F. *contusion*—from L. *contūsĭōnem*]: an injury on any part of the body from a blow without breaking the skin; a bruise: see BRUISE.

CONULARIA, n. *kŏn′ū-lā′rĭ-ă* [L. *conŭlŭs*, a little cone]: a genus of fossil Paleozoic pteropod shells having a tapering conical outline.

CONUNDRUM, n. *kō-nŭn′drŭm* [AS. *cunnan*, to know: *cunned*, crafty; and perhaps *dreám*, joy mirth]: a sort of riddle in which some fanciful or odd resemblance is proposed for discovery between things totally unlike.

CONUS, n. *kō′nŭs* [L., a cone]: genus of gasteropodous mollusks, the typical one of the family *Conidæ*. The shell is inversely conical, with a long narrow aperture, a notched outer lip, and a minute lamellar operculum.

CONVALESCE, v. *kŏn′vă-lĕs′* [L. *convales′cĕrĕ*, to grow quite strong—from *con*, *vales′co*, I grow or become strong]: to gradually grow better after illness; to recover health by degrees. CON′VALES′CING, imp. CON′VALESCED′, pp. *-lĕst′*. CON′VALES′CENT, a. *-lĕs′sĕnt* [F.—L.]: recovering health and strength after illness: N. one who has recovered from illness, but not as yet able to engage in active duty. CON′VALES′CENCE, n. *lĕs′sĕns* [F.—L.]: renewal of health.

CONVALESCENT HOSPITAL: valuable stage in the process of cure. Many patients die on returning from ordinary hospitals to their own unhealthy homes; the convalescent home or hospital receives those in whom recovery has begun but whose places in ordinary hospitals are needed for others. Either a series of detached cottages, or one large and well-appointed house, may serve to secure pure air and wholesome treatment. Of the latter kind, one of the first and best models was the magnificent establishment at Vincennes, founded 1857. It contains more than 400 beds; permits an average stay of 20 to 30 days; and in three years received 14,000 convalescent artisans.

CONVALLA′RIA: see LILY OF THE VALLEY.

CONVECTION, n. *kŏn-vĕk′shŭn* [L. *convectus*, conveyed —from *con*, together; *vectus*, carried]: the process of conveying or transmitting; the mode in which heat is propagated through the body of a liquid by the movements or currents of the heated portions—in contradistinction to *conduction*, the propagation of heat through a solid: see HEAT. CONVEC′TIVE, a. *-tĭv*, caused or accomplished by convection. CONVEC′TIVELY, ad. *-lĭ*.

CONVENE, v. *kŏn-vēn′* [F. *convenir*, to agree—from L. *convenīrĕ*, to come or meet together—from *con*, *venīrĕ*, to come: It. *convenire*]: to come together; to call; to meet; to come together for a public purpose; to cause to assemble; to call together; to convoke. CONVE′NING, imp. CONVENED′, pp. *-vēnd′*. CONVE′NER, n. the chairman of a committee; one empowered to call others together. CONVENABLE, a. *kŏn-vē′nă-bl* [F.]: in *OE.*, that may be convened; consistent with; accordant to.—SYN. of 'convene'; to assemble; meet; join; unite.

CONVENIENT, a. *kŏn-vē′nĭ-ĕnt* [L. *conven′ĭens*, or *con-*

venĭen'tem, agreeing, suitable: It. *conveniente* (see CONVENE)]: suitable; fit; adapted to use or wants; commodious. CONVE'NIENTLY. ad. *-lĭ*. CONVE'NIENCE, n. *-nĭ-ĕns*, [L. *convĕnĭĕntĭă*]: suitableness; commodiousness; that which is suited to wants or necessity.—SYN. of 'convenient': handy; suited; fit; fitted; adapted.

CONVENT, n. *kŏn'vĕnt* [F. *convent*—from L. *conventus*, a meeting, an assembly—from *con*, *ventus*, come: It. *con*, *vento*—*lit.*, the church or meeting of the faithful]: a house for persons devoting their lives to religious purposes; a body of monks or nuns—the house for the former is called a *monastery*, and the latter a *nunnery*. CONVEN'TUAL, a. *vĕn'tū-ăl* [F. *conventuel*]: belonging to a convent: N. a monk; a nun.—SYN. of 'convent': cloister; abbey; nunnery; monastery; priory.

CON'VENT: see NUN: MONASTERY: MONACHISM.

CONVENTICLE, n. *kŏn-vĕn'tĭ-kl* [L. *conventĭc'ŭlum*, an assembly, a place of assembly: It. *conventiculo*: F. *conventĭcule* (see CONVENE)]: a cabal or secret assembly, originally among monks of a monastery to secure the election of some favorite as abbot. It was given as an appellation of reproach to the assemblies of Wickliffe's followers, and was afterwards applied to the meetings of the English and Scottish nonconformists for worship: severe statutes were passed for the suppression of these conventicles: see ACT OF TOLERATION: TEST ACTS. The word is now used in contempt of a religious meeting of questionable propriety or decency; a meeting for plots. CONVEN'TICLER, n. *-tĭ-klėr*, one who supports or frequents conventicles.

CONVENTION, n. *kŏn-vĕn'shŭn* [F. *convention*—from L. *conventĭōnem*, an assembly (see CONVENE)]: the act of coming together; an assembly, particularly of delegates or representatives (see NATIONAL CONVENTION); an agreement made at a public assembly; an agreement made before a treaty or between the commanders of two hostile armies. CONVEN'TIONAL, a. *-ăl* [F. *conventionnel*]: customary; stipulated; tacitly understood; formal and unnatural. CONVEN'TIONALLY, ad. *-lĭ*. CONVEN'TIONAL'ITY, n. *-ăl-ĭ-tĭ*, anything pertaining to the customary usages of social life in living and acting. CONVEN'TIONALISM, n. *-ĭzm*, that which is received or established by custom or tacit consent. CONVEN'TIONARY, a. *-shŭn-ėr-ĭ*, acting under contract. CONVEN'TIONER, n. a member of a convention. CONVEN'TIONIST, n. *-ĭst*, one who enters into a contract.

CONVENTION, NATIONAL POLITICAL: assembly of delegates chosen in all the states and territories for the purpose of adopting a platform of party belief and principles, and nominating candidates for the offices of pres. and vice-pres. of the United States. They are composed of two delegates for each member of congress, who represent the congressional districts, and two for each U. S. senator, who represent the several states at large and are called

delegates-at-large. Delegates are chosen either in state or district conventions, called for the purpose according to the local usages of political parties. A convention also appoints a national committee which has direct charge of the presidential campaign for its political party. Prior to 1831, candidates for the presidential offices were nominated by the states. The first national political convention ever held in the United States met at Philadelphia 1830, under the presidency of Francis Granger. It was anti-Masonic in character, adopted resolutions answering to the platforms of subsequent times, and adjourned to meet in Baltimore in 1831, Sep., at which time it made the first convention nominations, its choice being William Wirt, of Md., for pres., and Amos Ellmaker, of Penn., for vice-pres. The national republicans held their first convention in Baltimore, 1831, Dec. 12, adopted as a platform an address to the country, and nominated Henry Clay, of Ky., for pres., and John Sergeant, of Penn., for vice-pres. In 1832, May, the first democratic national convention was held in Baltimore; it renominated Gen. Jackson for pres., and nominated Martin Van Buren, of N. Y., for vice-pres. The second democratic convention met in Baltimore 1835, adopted the famous 'two-thirds' rule, and unanimously nominated Martin Van Buren for pres., and Richard M. Johnson for vice-pres. The idea of a national convention had not yet been generally adopted, for in that year several whig state conventions nominated William Henry Harrison and Francis Granger; Ga. and Tenn. nominated Hugh L. White and John Tyler; Mass., Webster and Granger; Md., Harrison and Tyler; and S. C., W. P. Mangum and John Tyler. For the presidential campaign of 1840, the whigs held a national convention at Harrisburg, 1839, Dec., and nominated William Henry Harrison for pres., and John Tyler for vice-pres., and the democrats at Baltimore, 1840, May 5, unanimously renominated Martin Van Buren for pres., but made no nomination for vice-pres.; Richard M. Johnson and James K. Polk were subsequently nominated by several states. The first appearance of a 'liberal' party in national convention was at Buffalo 1843, Aug. 30, when J. G. Birney and Thomas Morris received the nominations. In the following year the whigs at Baltimore, May 1, nominated Henry Clay and Theodore Frelinghuysen, and the Democrats at the same place, May 23, nominated James K. Polk, on the ninth ballot, and George M. Dallas. The campaign of 1848 saw four presidential tickets in the field. The democrats at Baltimore, May 22, nominated Gen. Lewis Cass and Gen. William O. Butler; the whigs at Philadelphia, June 7, nominated Gen. Taylor and Millard Fillmore; the first national convention of the friends of free territory (against further extension of slavery) at Buffalo, Aug. 9, nominated Martin Van Buren and Charles Francis Adams; and the 'barn-burners' (though in state convention) at Utica, June 22-3, nominated Mr. Van Buren and Henry Dodge. The free-soil democrats held their first national conven-

tion at Pittsburg, 1852, Aug. 11, and nominated John P. Hale and George W. Julian; the same year the whigs at Baltimore, June, nominated Gen. Scott and William A. Graham; and the democrats at Baltimore, June, Franklin Pierce (49th ballot) and William R. King. In 1856 two new parties appeared in the field. The national Americans met at Philadelphia, adopted a platform declaring that Americans must rule America, and nominated ex-Pres. Fillmore and Andrew J. Donelson; and the anti-Nebraska men, with other 'free-soilers' who condemned the repudiation of the Mo. compromise, held their first convention in Pittsburg, Feb. 22, and nominated John C Fremont and William L. Dayton; this was the first convention of what has since been known as the republican party. The democrats that year at Cincinnati, June 5, nominated James Buchanan and John C. Breckinridge. Since 1856 the republicans and democrats have held regular conventions; a constitutional union (late American) convention was held at Baltimore, 1860, May 9; two democratic conventions were held 1860, Charleston, Apr., and Baltimore, June; a soldiers' and sailors' convention was held at New York, 1868, July 4; a labor reform convention was held at Columbus, 1872, Feb. 21; the first national liberal republican convention was held at Cincinnati, 1872, May; the first national greenback convention was held at Indianapolis 1876, May 18; the first national prohibition convention was held at Cleveland, 1880, June 17; the first national anti-monopoly convention was held at Chicago, 1884, May 14; and the first national woman's suffrage convention was held 1884, and nominated Mrs. Belva Lockwood for president.

CONVEN'TIONAL, in Art: that which is in accordance, not with the absolute principles of beauty in form and color, but with the opinions and style of the time and place; in a higher sense, the modification of natural forms required by certain principles of decorative art, such as that a repeated pattern must not strictly copy nature but be generalized, especially so on a flexible fabric; also, the more form the less natural color, etc.

CONVEN'TION PAR'LIAMENT: historical expedient in Britain for a legislative expression of the general popular will in default of the legal authorization usually requisite. It is a branch of the royal prerogative, that no parliament shall be convened by its own authority, or by any other authority than that of the sovereign. Where the crown is in abeyance, this prerogative cannot of course be exercised, and the expedient of convention parliaments has been resorted to, the enactments of which shall afterward be ratified by a parliament summoned in accordance with the provisions of the constitution. The convention parliament which restored Charles II. to the throne met more than a month before his return, and was afterward declared a good parliament notwithstanding the defect of the king's writs (13 Car. II. c. 7 and c. 14). In like manner, at

the revolution of 1688, the lords and commons, on the summons of the Prince of Orange, met in convention, and disposed of the crown and kingdom; and this convention was subsequently declared (1 Will. and Mary, st. 1, c. 1) to be really the two houses of parliament, notwithstanding the want of writs and other defects of form. Under the name of CONVENTION, there was also a meeting of the Estates of Scotland, called by the Prince of Orange on the same occasion, beginning 1689, Mar. 14, and turned into a parliament June 5. Its principal act was to settle the Scottish crown upon William and Mary. After these precedents, the meeting of a convention parliament might almost be entitled the constitutional mode in which the general will of England expresses itself on such questions as cannot be constitutionally discussed in parliament—*e.g.*, a change of the reigning dynasty.

CONVERGE, v. *kŏn-vėrj'* [F. *converger*—from mid. L. *convergĕrĕ*, to converge—from L. *con*, *vergĕrĕ*, to incline to bend]: to incline or tend to one point, as rays or lines—*diverge*, its opposite, means to branch or radiate from a point. CONVER'GING, imp.: ADJ. having a movement or direction toward the same point. CONVERGED', pp. *-vėrjd'*. CONVER'GENT, a. *-vėr'jĕnt* [F.]: tending to one point; in *bot.*, applied to ribs of leaves running from base to apex in a curved manner. CONVER'GENCE, n. *-jĕns*, or CONVER'GENCY, n. *-jĕn-sĭ* [F. *convergence*]: tendency to one point.

CONVERGENCE, in vision: the turning of the visual axes of the two eyes upon a common center of fixation for the purpose of bringing images from the object fixated upon the foveas of the two retinas. Often restricted to the cases in which fixation changes from a remote to a near object. It is then opposed to divergence. Often used of any joint action of two eyes, in which case it includes ocular divergence: see EYE.

CONVERG'ING, or CONVERG'ENT, in Geometry: see SERIES.

CONVERSABLE, CONVERSANT, etc.: see under CONVERSE 1.

CONVERSANO, *kŏn-vĕr-sâ'nō:* town of s. Italy, province of Bari, about 19 m. s.e. of the city of Bari. It is pleasantly situated on a hill in a fertile wine, oil, almond, and cotton producing district. It has a cathedral and several convents. Pop. about 10,500.

CONVERSAZIONE, n. *kŏn'vėr-săt'zĭ-ō'nā*, plu. CON'VERSAZ'IONI, *-săt'zĭ-ō-nē* [It.]: a select company met for conversation, usually on literary topics; a soiree or reunion.

CONVERSE, v. *kŏn-vėrs'* [F. *converser*, to talk with—from L. *conversārī*, to live or keep company with—from *con*, *versārĕ*, to turn much or often: It. *conversare*]: *formerly*, to live or keep company with; to talk familiarly with; to speak with as a friend with a friend: to convey thoughts and opinions in friendly intercourse; to have

commerce or intercourse with the opposite sex: N. *kŏn-vėrs*, familiar discourse or talk. CONVER'SING, imp. CONVERSED', pp. *-vėrst'*. CONVER'SABLE, a. *-să-bl*, ready or free to converse; sociable. CONVER'SABLY, ad. *-blĭ*. CONVER'SABLENESS, n. *-bl-nĕs*, disposition or readiness to converse; sociability. CONVERSANT, a. *kŏn'vėr-sănt*, having frequent or customary intercourse; acquainted by familiar use, study, or intercourse. CON'VERSANTLY, ad. *-lĭ*. CON'VERSA'TION, n. *-sā'shŭn* [F.—L.]: familiar intercourse in speech; easy unrestrained talk; in *OE.*, manner of acting in life; behavior; commerce or intercourse with the opposite sex. CON'VERSA'TIONAL, a *-ăl*, pertaining to conversation. CON'VERSA'TIONALIST, n., or CON'VERSA'TIONIST, n. one who excels in. CONVER'SATIVE, a. *-să-tĭv*, chatty; sociable.—SYN. of 'conversation': colloquy; conference; dialogue; discourse; intercourse; communion; talk; chat; familiarity;—of 'converse, v.': to commune; talk; speak; chat; associate.

CONVERSE, n. *kŏn'vėrs* [F. *converse*, converse in logic —from L. *conversus*, a turning or twisting round—from *con*, *verto*, I turn about; *versus*, turned about]: in *logic*, a sentence or proposition in which the terms are interchanged, as putting the predicate for the subject, or *vice versâ;* in *math.*, a proposition in which, after a conclusion has been drawn from something supposed, the order is inverted by making the conclusion the supposition: ADJ. opposite; reciprocal. CONVERSE'LY, ad. *-lĭ*, in a contrary order; reciprocally.—CONVERSE and CONVERSION in *logic*, signify that one proposition is formed from another by interchanging the subject and predicate: as, 'Every A is B;' the converse of which is, 'Every B is A.' This example is termed a case of *simple* conversion; besides which, however, logicians recognize two other kinds of conversion—viz., *limited* conversion, and conversion by *contraposition*. The former may be exemplified thus: 'Every A is B;' the limited converse of which is '*Some* Bs are As;' and the latter thus: 'Some A is not B;' which converted by contraposition, is, 'Something that is not B is A;' 'Some men are not wise; some beings that are not wise are men.' Of these logical converses, the second and third are *necessarily* true, but not the first. When we say, 'Every A is B,' the reader might at first sight conclude that 'Every B is A' also; but if, instead of these letters, to which he probably attaches no meaning, he employ terms denoting objects with which he is familiar, he will see that a simple converse may be far from the truth. Thus, 'Every penny is a coin,' has for its simple converse 'Every coin is a penny.' The reason why a simple converse is not necessarily true is, that in such a proposition as 'Every A is B,' the subject 'A' is—to speak logically—universally distributed, whereas the predicate 'B' is not. If it were, the proposition would read as follows: 'Every A is *every* B;' the simple converse of which, 'Every B is every A,' would be true.

CON'VERSE, Florence, American writer: b. New Orleans, 1871, April 30. She graduated at Wellesley College in 1893, began writing for the magazines, and has been a member of the editorial staff of *The Churchman* (New York) since January 1900. She is the author of: *Diana Victrix*, a novel (1897); *The Burden of Christopher* (1900); *Long Will, a Romance* (1903).

CONVERSE, George Albert, American naval officer: b. Norwich, Vt., 1844, May 13. Educated at Norwich University, he was graduated from the United States Naval Academy in 1865, was in the torpedo service in 1869–72, instructor at the torpedo station (Goat Island, Newport Harbor, R. I.) in 1885–9, and in charge of the station in 1893–7. He was promoted commander in 1889 and captain in 1899. In 1897–9 he commanded the U. S. S. Montgomery, seeing service in the Spanish war; in 1899 was made chief of the bureau of equipment, with rank of rear-admiral; in September 1902 was assigned to the command of the Illinois; from March-August, 1904, was chief of the bureau of ordnance, and since then chief of the bureau of navigation. He became rear admiral 1904, Nov. 8, and was retired in 1907. He is regarded as one of the foremost ordnance experts in the navy.

CONVERSE, Harriet (Maxwell), American philanthropist and author: b. Elmira, N. Y., 1839; d. New York, 1903, Nov. 18. For some years she travelled in Europe, contributing to the American press, and in 1883 published a collection of verses, *Sheaves*, which passed through several editions. In 1884 she was formally made a member of the Seneca Indians, and for many years labored in defense of the rights of Indians both in New York and elsewhere. In 1891 she finally secured the defeat in committee of a bill introduced into the New York legislature with the purpose of depriving the Indians of their lands, and thereupon was elected a member of the Seneca national council and installed a chief of the Six Nations. She made valuable collections of Indian curios and antiquities. Among her further writings is *Myths and Legends of the Iroquois Indians* (1903).

CONVERSE, James B., American Presbyterian clergyman: b. Philadelphia, 1844, April 8. He graduated at Princeton 1865, and Union Theological Seminary, Virginia. He edited the *Christian Observer* 1872–9; was engaged in pastoral and evangelistic work 1879–88; and edited the *Christian Patriot* 1890–5. He has published: *A Summer Vacation Abroad* (1878); *The Bible and Land: argument in favor of single tax* (1889); *Uncle Sam's Bible, or Bible Teachings About Politics* (1899).

CONVERSION, n. *kŏn-vĕr'shŭn* [F. *conversion*, conversion—from L. *conversĭōnem*, an alteration, a change—from *con*, *versus*, turned about (see Convert)]: change from one state to another; a change of heart or disposition evidenced by a new course of life and love to God; change from one side, party, or religion to another.

CONVERSION, in Law: theoretical exchange of one kind of property for another, which under certain circumstances the law regards as having been made though no actual exchange takes place—known as equitable conversion: or the unauthorized exercise of acts of ownership over the personal property of another—in practice called a *tort.* An illustration of an equitable conversion is in the case of a testator directing his land to be sold and converted into money. The law regards the sale as having been made at the moment of his death, whether it was or was not. If, after contracting to sell, he should die before making a conveyance, his executors would be entitled to the money, and not his heirs. In case of an unauthorized act of ownership the owner of the property may (1) reclaim it, or (2) regard the other party as having become the owner and recover the value of it. A constructive conversion takes place when the acts of a party over the property of another amount to a virtual appropriation of the property; and a direct conversion when one party appropriates the property of another to his own or another's benefit, and alters its character in any way, or destroys it.

CONVERSION, in logic: signifies that one proposition is formed from another by changing the subject and predicate: as, 'Some A is B;' the converse of which is 'Some B is A.' This example is a case of *simple conversion;* besides which, however, logicians recognize two other kinds of conversion—viz., conversion by *limitation* or *per accidens* and conversion by *contraposition.* The former is so named because, in conversion, the original proposition loses some of its denotation or extension; thus 'All A is B' converted becomes, not 'All B is A,' but 'Some B is A;' from being *universal* the proposition has become *particular.* Take a concrete case; it does not follow from the truth of 'All liars are men' that 'All men are liars.' In universal affirmatives, *i.e.,* propositions of the type 'All A is B,' the predicate is not distributed, *i.e.,* not taken universally; whereas the subject is so taken; hence, it is not legitimate to interchange the terms simply. Conversion by *contraposition* consists in altering the quality of a proposition as well as changing the respective positions of its terms; *e.g.,* 'No men are angels,' converted by contraposition, becomes 'All angels are beings who are not men;' 'Some A is not B' becomes 'Some not-B is A.' Propositions of the type 'No A is B,' *i.e.,* universal negatives, and propositions of the type 'Some A is B' *i.e.,* particular affirmatives, can be converted simply; propositions of the type 'Some A is not B' can only be converted by contraposition.

CONVERT, v. *kŏn-vėrt'* [F.] *convertir*—from L. *convertĕrĕ,* to turn round—from *con, vertĕrĕ,* to turn about: It. *convertere* (see CONVERSION)]; to change from one state to another; to turn from one religion, party, or sect to another; to turn to the service and love of God; to change from one use or destination to another. CONVERT'ING, imp. CONVERT'ED, pp. CONVER'TER, n. one who: in *metal.,* spheri-

cal receptacle for iron which is to be converted into steel; it is lined with fire-clay and has a perforated bottom through which a powerful blast is driven; when the steel in it becomes liquid it is poured into molds. CONVERT, n. *kŏn′vėrt*, one changed from one opinion, sect, or practice to another; one turned from sin to holiness. CONVER′TIBLE, a. *-tĭ-bl*, that may be changed or used for one another; susceptible of change. CONVER′TIBLY, ad. *-blĭ*. CONVER′TIBIL′ITY, n. *-bĭl′ĭ-tĭ*, the quality of being changeable from one condition or state to another. CONVERTING-FURNACE, a furnace for converting wrought-iron into steel: see BLISTERED STEEL. —SYN. of 'convert, v.': to change; turn; appropriate; transmute; alter; transform; reduce;—of 'convert, n.': proselyte; neophyte; pervert, in an opposite sense.

CONVERTER, ROTARY: a form of dynamo-electric machine for converting alternating currents into unidirectional or continuous currents or vice-versa: see ELECTRICAL MACHINES.

CONVERTER, STATIC: see TRANSFORMER.

CONVEX, a. *kŏn′veks* [F. *convexe*, convex—from L. *convexus*, vaulted or arched—from *con*, *vectus*, carried or borne]: vaulted or arched over; rising or swelling on the surface; rising in a circular or round form on the surface; opposite of *concave*, meaning hollow. See CONCAVE. CON′VEXLY, ad. *-lĭ*. CONVEXED′, a. *-vĕxt′*, made convex. CONVEX′EDLY, ad. *-ĕd-lĭ*. CONVEX′ITY, n. *-ĭ-tĭ* [F. *convexitè*]: a roundness of surface. CONCAVO-CONVEX, round on one side and hollow on the other. DOUBLE-CONVEX, round on both sides. PLA′NO-CON′VEX, flat on one side and convex on the other.

CONVEY, v. *kŏn-vā′* [Norm. F. *conveier;* F. *convoyer*, to attend, to conduct—from OF. *voier*—from mid. L. *convĭārĕ*, to conduct—from L. *con*, *vĭă*, a way—*lit.*, to attend or conduct on the way]: to carry; to bear or transport; to pass or transmit, as a right; to transfer; to impart; to communicate; in *OE.*, to manage secretly; to play the thief. CONVEY′ING, imp. CONVEYED′, pp. *-vād′*. CONVEY′ER, n. one who; in *OE.*, a juggler; an impostor. CONVEY′ABLE, a. *-ăbl*, that may be carried away, that may be transferred. CONVEY′ANCE, n. *-ăns*, the act of conveying or removing; the act of transmitting or transferring, as property; the deed which transfers anything to another, as property; the means of carrying a thing from place to place, as a wagon, a boat; in *OE.*, secret management. CONVEY′ANCER, n. *-ăn-sėr*, a lawyer employed to draw up writings (*conveyances*) by which the title to property is transferred CONVEY′ANCING, n. *-ăn-sĭng*, the business of a conveyancer; the practice of drawing deeds or other writings for transferring the title of real property from one person to another.—SYN. of 'convey': to bring; bear; carry; fetch; transport; transmit; transfer.

CONVEY′ANCE, in Law: the deed or writing by which property is conveyed or transterred from one person to another. See CONVEYANCING; MORTGAGE ASSIGNMENT; etc.

CONVEYANCING.

CONVEYANCING: art of preparing the deeds or instruments used for the transference of property from one person to another. Such writings form the title or evidence of the right of the person possessing or claiming possession of property; and it is of the greatest importance that the conveyancer employed to prepare them, should have competent knowledge of the law as applicable to such deeds, and have the skill to frame them in such form as clearly to express and attain the object. In the earliest stage of society, there was no call for the profession of a conveyancer; property was held in right of occupancy, without any written title, and was also conveyed from one to another without writing, the new owner being usually put in possession in presence of witnesses called for the purpose, by some symbolical form, such as the delivery of earth and stone to represent the land, a wand to represent wood, grass and corn to represent tithes, and other appropriate symbols to represent mills, fishings, or other kinds of property.

In the earlier period of the history of the Jews, the symbolical mode of changing the ownership of property was curious. 'Now this was *the custom* in former time in Israel concerning redeeming and concerning changing, for to confirm all things: a man drew off his shoe, and gave it to his neighbor: and this was the manner of attestation in Israel' (Ruth iv, 7). In later times, the Jews appear to have had a much more artistic system of C., with all the safeguards used in modern times—viz., writing, witnesses, subscribing, sealing, and recording the documents. There is a very distinct account of a Jewish conveyance in the later period in Jeremiah xxxii, 9—12: 'And I bought the field of Hanamel, and weighed him the money. And I subscribed the deed, and sealed it, and called witnesses. So I took the deed of the purchase, both that which was sealed according to the law and custom, and that which was open: and I delivered the deed of the purchase unto Baruch, in the presence of Hanamel [the seller], and in the presence of the witnesses that subscribed the deed of the purchase, before all the Jews that sat in the court of the guard.'

The Romans made no distinction in principle between real and personal, or movable and immovable property, in their conveyancing. Each kind of property was held free of any superior. Their deeds were therefore simple, not requiring any reservation or declaration of the superior's rights. They had public registers in which conveyances were recorded. After the invasion of the southern by the northern nations, the feudal system spread over nearly the whole of Europe, and C. was regulated in accordance with it; the rights of the superior and the rights of the vassal or proprietor being carefully distinguished. The Leges Barbarorum, contained in the Burgundian Code, and the Code of the Longobardi, embody the older feudal uses, from which the modern are derived. In the 7th c., a work of peculiar interest to the conveyancer was compiled by Marculfus, a monk, containing the germs of modern conveyancing. It is in substance a book of styles or forms of deeds, partly Roman and partly feudal. The genius of the system of

land-rights derived from the barbarians was to concentrate the property of land, for the sake of individual power; while the Roman laws and customs tended in the opposite direction, for they treated land in regard to succession like movables, as he French now do, dividing it among all the members of a family. Alienation by sale or gift was freely permitted a power long denied by the feudal rules Indeed, feus or grants were originally revocable by the superior, and did not become hereditary till the time of Charlemagne.

Among the ancient Goths and Swedes, the conveyance of land was made in the presence of witnesses, who extended the cloak of the buyer, while the seller threw a clod of the land into it, as a symbol of the transference of possession. Among the Saxons, the delivery of a turf by the seller to the buyer was necessary. Written titles were, however, introduced at an early period, and at first were short and simple in form, but increased in length and complexity as civilization advanced, containing various conditions, provisions, and limitations, so that the art of the conveyancer became both difficult and laborious. He had not only to prepare the appropriate form of conveyance, but to examine the prior writings forming the title to the property, in order to judge whether they were in proper form and valid. As a general rule, a written title is now essential to the possession of real property in civilized communities; and if there is no written title, the property falls to the crown or state. In the Roman empire, extending over the greater part of Europe, the system of land-rights was allodial—that is, the lands were held independent of any superior: see ALLODIUM. After the irruption of the northern nations into Italy, the feudal system was introduced, by which the proprietor has only a limited right under a superior. The introduction of the feudal system tended to complicate written titles to land very much, as not only had the rights of the grantee or vassal to be expressed and defined, but those of the granter as overlord or superior, also. In the present century, the tendency is towards simplicity; and in France, the feudal system has been superseded by the Code Napoleon. In Great Britain and other countries still retaining the feudal system, the forms of C. have been much shortened and simplified. While the feudal system, on the one hand, increased the complexity of C., on the other hand it greatly lessened the number of conveyances. Under the Roman law, real property descended equally to all the heirs of a deceased proprietor, each heir requiring a written title to his own share; while the genius of the feudal law was to concentrate property in the heads of families, and the eldest son inherited the whole real estate of his ancestor; and alienation, by gift or sale, was long denied to feudal proprietors. Improvement in the science of law occasions improvement in conveyancing. Under the Roman empire, the art of C. had attained to much precision in the hands of the imperial notaries. After the fall of the empire, C. fell into the hands of ecclesiastical notaries; by them it was com

municated to the conveyancers of the church, who performed the duties of the conveyancer for some centuries, till after the revival of letters, when the art again passed to laymen.

The feudal system does not seem to have been generally introduced into Great Britain till after the conquest, though traces of it are found earlier. The inherent character of the feudal tenure is a grant of land made voluntarily by a king or leader, on the condition of the fidelity of the grantee. and military service. While, on the one hand, the superior was a protecter to the vassal in time of trouble; on the other hand, the vassal was exposed to the cupidity and rapacity of the superior, whose right to casualties of feudal incidents enabled him to oppress his vassals. For these casualties or incidents, see FINE: QUIT-RENT: HERIOT: COPYHOLD: ESCHEAT: WARDSHIP: MARRIAGE. One of the most curious of these incidents was the last mentioned. A male heir was required to have the consent of his superior, and large fines were exacted for the consent. In the time of Charles I., the Earl of Warwick exacted £10,000—equal to a much larger sum now—for his consent to a lady-vassal marrying a husband in every respect suitable.

So long as feudal forms are retained, C. must be complex and expensive Public opinion in England has latterly tended unmistakably toward a thorough abolition of the complex and expensive deeds required in the sale and mortgage of land, and the legislature has of late years done much toward this reform. Movable property is usually conveyed by delivery, but there are exceptions; thus, if it has been part of the bargain that the sale has to be completed by writing, the contract must be reduced to writing; and by statute, ships must be conveyed by a writing, which must be entered in the appropriate register, so as to show a change in ownership. See RECORD OF CONVEYANCE.

CONVICT, v. *kŏn-vĭkt'* [L. *convictus*, proved guilty or wrong—from *con*, *victus*, vanquished or subdued]: to prove or find guilty of a crime charged; to convince of sin; to show or prove to be false: N. *kŏn'vĭkt*, a person proved guilty of a crime by a court of justice; a felon. CONVIC'TING, imp. CONVIC'TED, pp.: ADJ. proved guilty; in *OE.*, condemned to destruction. CONVIC'TION, n. *-vĭk'shŭn* [F.—L.]: the act of finding or proving guilty; strong belief grounded on evidence; the act of making, or being made, sensible of sin or error. CONVIC'TIVE, a. *-vĭk'tĭv*, having the power to convict or make sensible of error. CONVIC'TIVELY, ad. *-lĭ*. CONVICTISM, n. *kŏn'vĭkt-ĭsm* [Eng. *convict; -ism*]: the convict system: the system of transportation of convicts to penal settlements.—SYN. of 'convict, v.': to detect; persuade; convince; confute; confound; prove;—of 'convict, n.': criminal; malefactor; culprit.

CON'VICT: one convicted of any criminal charge. The term came by custom to be applied to persons subject to punishment for the more serious class of offenses, and of late its meaning has become almost entirely restricted to the class of criminals who used to be transported to the distant

colonies of Britain. These criminals are now condemned to penal servitude for longer or shorter periods, and are usually spoken of as convicts under penal discipline, while offenders sentenced to short periods of detention in the ordinary jails are called prisoners. For the earlier history of the treatment of convicts, see TRANSPORTATION. In the United Kingdom, the system of transportation to the chief penal colony, New South Wales, was suspended, 1840. Grave doubts had become prevalent as to the efficiency of the system, and all questions created by these doubts were solved by the refusal of the colonies to receive convicts, and the impossibility of disposing of them abroad, except in small numbers to the small district of W. Australia. It was thus necessary to solve the question, how these convicts could be treated at home in a manner consistent with the objects of punishment—the protection of the community, and the reformation of the offender to the extent to which that is practicable. Before this necessity occured, considerable progress had been made in prison-discipline by arrangements which, without subjecting criminals to absolute silence or absolute solitude, separated them from the contaminating society of each other. It was naturally supposed that a system found beneficial for ordinary prisoners would suit convicts. But it was discovered that the discipline beneficially applied during a short period of imprisonment, could not be endured for a long period without physical and mental deterioration; and that the depression and anxiety created by their long sentences—sometimes for 20 years, sometimes for life—made convicts break down under it within the period for which it could be quite easily endured by ordinary prisoners. It is a fixed principle of prison-discipline, that while punishment may be made to any extent disagreeable, it is never to be permitted to injure either the body or the mind, unless such injury be unavoidable. It was found unsafe to subject male convicts to separate imprisonment for more than eigh months; females, owing to some constitutional difference are found to bear it without detriment for four months longer. At the end of eight months, then, or a year, as the case may be, the C. is gradually, so far as is consistent with safe custody, brought back into the habits of the freer population. It is usual to call the early stage of their discipline, the probationary, and the later, the reformatory. In the latter, they are associated under precautions and careful inspection, and are occupied in trades in which they may make their bread when free. Public works, such as the breakwater quarries, and fortress at Portland, and the works at Chatham and Portsmouth, afford a valuable outlet for C. labor. In such establishments may be seen a thousand men or more, with hammers, mattocks, axes, and all descriptions of formidable tools, working under the eye of their warders as quietly and systematically as ordinary laborers. There are establishments where, as far as possible, the same system is administered to females—as at Woking and the general prison for Scotland at Perth. The great hold by which the convicts are kept in order is the

system popularly called 'the mark system,' under which, by steady application to work, convicts earn a remission of part of their sentence. Conduct is not taken into account in assigning these marks, but on the occasion of any specific misconduct, a proportion of earned and registered marks is forfeited. The present convict establishments of the United Kingdom are: in England—Dartmoor, in which the great proportion are invalids; Portland, Portsmouth, Chatham, and Borstal, for males, in each of which there are public works; Pentonville, Parkhurst, Wormwood Scrubs, and Brixton, for males; Woking and Millbank for males and females; and Fulham, for females. In Scotland, the convict department of the general prison at Perth is occupied by a limited number of males for the first nine months of their sentence (after which they go to public work prisons in England), and by females for the whole period. In Ireland are Spike Island and Lusk for males; and Mountjoy for males and females. See PRISONS—PRISON DISCIPLINE.

CONVICT LABOR. The introduction of industry into prison life, apart from its use to keep penitentiaries in good order and good repair, is a product of 19th century reforms. Isolated cases it is true occur before. Mabillon, a Benedictine monk of the 17th century, urged a cellular system of imprisonment, labor in the cells, and gardens where prisoners might rest after the day's work. In 1704 Pope Clement XI. opened a prison at Rome, where the industrial feature proved successful in the case of boys. A famous prison built in Ghent in 1775 by Viscount Vilain XIV. had a well-organized labor system, intended to benefit the prisoner and make him useful to the state. Two years afterward John Howard published his work on *Prison Reform*. But in practice before the beginning of the 19th century, and well into it, labor was considered in a penological bearing only as offering the possibility of severer punishment, an idea excellently typified by the Roman system of punishing the city slave by sending him to the country tread-mill, or by the terrible toil of the galley slave in Italy and France. This penal point of view was followed by the fiscal interest of the state and to a certain degree intermixed with it; the state will save, and if possible, make money by means of its use of the time and strength of the convict. Then the disciplinary interest became predominant; the convict will furnish us less trouble if we keep him at work. A further step is taken when the object of convict labor becomes moral and the prisoner is put to work to keep him from idleness, spring of so much vice, and to promote his ability to earn an honest livelihood upon his release. In the latest among these stages a distinct effort is made to furnish the convict with decent and pleasant work, and the old scheme of choosing the most revolting and dangerous, the most degrading and monotonous task has been done away with.

Unfortunately the evolution hinted at has not been completed, and traces of each of the ideals mentioned may

still be found in the various systems of Europe and the United States. 'At hard labor,' for example, is still felt to be a degrading and aggravating addition to the sentence of detention. As far as actual business management is concerned there are two methods of convict labor. In the first, where the 'product or profits of labor is shared by the state with private individuals or firms,' we may mention three divisions, sufficiently characterized by their common names: the contract system, the piece-price system, and the lease system. The second general class, 'systems under which convicts are worked wholly for the benefit of the state' or its parts, again falls into three divisions, the public-account system, the state-use system, and the ways and works system. Theoretically the piece-price system is best in the former class, as it keeps discipline in the hands of prison authorities and leaves business to the entrepreneur; moreover it lacks the faults of the contract system, which to a degree interferes with regenerating influences by the very monotony of highly specialized and largely divided industries. In the second class, the public account system, by which goods were made in prison, under the control of regular prison officers, and were sold in a rather haphazard way, has bulked so largely in the public eye, by reason of the attacks made on it by the representatives of free labor (who overlook the fact that cheaper production is offset by slower production), that the other sub-classes have been overlooked. Of these systems the most popular is that which provides that all results of convict labor should be used by the state, and yet this as a system could equally well be attacked by labor unions, which naturally desire to supply state institutions as well as other sources of demand. Although it has but a limited field, the state-use system is growing; it is used in most of the northern states and is authorized by the federal government for the Fort Leavenworth penitentiary.

The lease system calls for special notice. Its particular habitat is the South, where after the war a remodeling of the penitentiary system was demanded because of the addition of the negro factor to the problem, more than 90 per cent. of convicts in most states being negroes. Both expense and the need of out-door work on the part of the negro made impracticable the continued use of walled penitentiaries, which moreover would have been quite inadequate under new conditions. The lease system came into general use in the late forties, and felons were worked in coal and iron-mills, sawmills, and farms. A chief inspector had general charge, but the responsibility, which was scarcely more than nominal, was upon the lessee and his inspectors and physicians. In many states this system gave rise to horrible abuses. In Georgia it was abolished in 1897 and the state camp system put in its place. The death rate dropped from over 7 to 1.4 per cent. in four years. Pay was allowed the prisoner who volunteered to do extra work, and the more brutal forms

of corporal punishment abolished. But even in Georgia the county chain gang, made up of minor offenders, under supervision of county road commissioners, is still cruel and vicious. Worse than the county chain gang of Georgia, where only 45 per cent. are hired to private individuals, is the system in other states. Alabama, notably by its contract law of 1901, which was declared unconstitutional in 1903 by a United States circuit court judge, made possible the following scheme of peonage: A minor offender and often a perfectly innocent person is sentenced to a light fine which the constable offers to pay for a certain number of months' work. At the expiration of this period a new charge is trumped up, or the negro induced to attempt escape, he is again tried and sent to the convict camp or fined for the benefit of the constable and his backers. The universal disapproval of this system in the South and the prompt action of the federal authorities promise its immediate abolition.

On convict labor consult Vol. III. of the *Report of the United States Industrial Commission* (1900); Liszt, *Die Gefangnisarbeit* (1900); Wright, *Prison Labor* in the *Catholic University Bulletin* (October 1899); and Roux *Le travail dans les prisons* (1902).

CONVINCE, v. *kŏn-vĭns'* [L. *convincĕrĕ*, to completely overcome—from *con*, *vincĕrĕ*, to vanquish or subdue—*lit.*, to overcome completely]: to persuade; to satisfy the mind by evidence; to compel the mind by arguments to yield its assent; to convict; in *OE.*, to overpower or surmount. CONVIN'CING, imp.: ADJ. that persuades or satisfies the mind. CONVINCED', pp. *-vĭnst'*. CONVIN'CER, n. *-sẽr*, one who. CONVIN'CIBLE, a. *-vĭn'sĭ-bl.* CONVIN'CINGLY, ad. *-sĭng-lĭ*, in a manner to leave no room for doubt.

CONVIVE, v. *kŏn vīv'* [L. *convīvor*, I eat, I feast; *convīva*, a table-companion]: in *OE.*, to feast together; to entertain. CONVI'VING, imp. CONVIVED', pp. *-vīvd'*.

CONVIVIAL, a. *kŏn-vĭv'ĭ-ăl* [L. *conviv'ĭŭm*, a feast—from *con*, *vivĕrĕ*, to live: L. and It. *convivĭālĕ*, convivial]: relating to a feast; festive; social; jovial. CONVIV'IALIST, n. a person good-humored and social at an entertainment. CONVIV'IALLY, ad. *-lĭ.* CONVIV'IAL'ITY, n. *-ăl'ĭ-tĭ*, the good-humor or mirth indulged in at an entertainment.—SYN. of 'convivial': sociable; festive; festal; gay; jovial.

CONVOCA'TIONS, in the Church of England: originally a synod of the clergy or the ancient ecclesiastical council of the archbishop; afterward incorporated into the English constitution of church and state, and endued with certain parliamentary privileges. Some writers distinguish between councils and C.—the former as being for spiritual purposes, and summoned without authority from the crown; the latter as being for civil purposes, and by command of the crown. The two, however, in process of time, especially after the Conquest, became gradually blended; C. made canons, and councils granted subsidies, and all distinction

had disappeared before the Reformation. The circumstances attending the famous assembly at Northampton, 1282, in the reign of Edward I, helped to settle the form which C. have since assumed. In England, the provinces of Canterbury and York have each their convocation. Previous to the Reformation, these were sometimes convened into a *National* Synod; but since then, matters have usually been concluded in the C. of Canterbury, and transmitted to York for concurrence. A convocation consists of three elements.—1. The archbishop; 2. The bishops; 3. The clergy of the second order. They originally met in one assembly, but since the beginning of the 14th c. the clergy of the second order in the province of Canterbury have retired into a distinct chamber, presided over by a *prolocutor*, with officers and journals of their own. These two bodies are called the Upper and Lower Houses. In the Convocation of York the same distinction exists, but on the rare occasions of their meeting, the business has been generally conducted in one assembly. The archbishop has the sole power of summoning, presiding, and proroguing; he has also a veto upon all measures. He cannot, however, summon without authority from the crown. The Upper House is the proper *locus synodi*, where the bishops have a right to sit and vote, and before the reformation the mitred abbots had place there also. The Lower House consists of the lesser dignitaries, as deans and archdeacons, and the proctors sent by capitular bodies and by the parochial clergy. In Canterbury, the beneficed clergy only elect, and they send one proctor for each diocese; in York, all the clergy elect, and send one proctor for each archdeaconry. The Lower House deliberates on matters proposed by the archbishop; it may present petitions to the Upper House and state grievances, be with it in judicature on persons convened, and dissent from and so hinder the passing of any synodical act. The passing of subsidies in convocation ceased in 1665, and the records were destroyed in the fire of London in the following year. Meetings of convocation fell into abeyance from the political troubles caused by the Revolution of 1688. They have been revived with considerable advantage to the church, but their action has been and is greatly restricted. In Ireland, the C. of the four provinces formerly assembled at Dublin, all together, and were on the model of those in England. From the Union downward the Irish C. never assembled. Since the disestablishment, the legislative assembly of the Irish Prot. Epis. Church is called the General Synod. An act of parliament was passed 1663, for regulating the meetings of convocation in Scotland; but shortly after the Revolution of 1688, the Episcopal Church ceased to be the national church; and ever since, the meetings of the Presb. Church, embracing clergy and laity, have been called General Assemblies: see ASSEMBLY: SYNOD.

The position of the church of England as respects its C. is exceedingly anomalous, but is incidental to certain circumstances in the constitution and polity of the country. As essentially interwoven with the state, the church pos-

sesses no independent action; its articles, liturgy, organization as to benefices, etc., all are regulated by parliament while its discipline falls within the scope of the ecclesiasti cal courts, a class of tribunals apart from the ministering clergy. The church, therefore, in its capacity as an institution to teach certain doctrines of religion, is left little to do in the way of jurisdiction. It is further urged, as a reason for restricting the power of Convocation, that being purely sacerdotal, it might be apt to run into excesses, and put forth claims adverse to the prevailing tone of sentiment on religious matters; that, in short, as things stand, it is safer for the public to be under the authority of parliament than to be subject to the ordinances of a body of ecclesiastics. At the same time, it is generally allowed that some kind of reform is desirable, though how this should be effected in a manner satisfactory to all parties, is not evident. The convocation of Canterbury was prorogued 1717 as a sequence of the Bangorian controversy, and obtained no license from the crown for any transaction of business till 1861. In 1870 the Anglo-American Bible-Revision originated in this body. The convocations of Canterbury and York assemble annually at the opening of parliament, each keeping up its own distinctive customs. See Trevor's *Convocations of the Two Provinces*, Cardwell's *Synodalia*, and *Documentary Annals;* Lathbury's *History of the Convocation of the Church of England.* '

CONVOKE, v. *kŏn-vōk'* [F. *convoquer*—from L. *convocārĕ*, to call together—from *con*, *vocārĕ*, to call: It. *convocare*]: to call together; to convene. CONVO'KING, imp. CONVOKED', pp. *-vōkt'*. CON'VOCA'TION, n. *-kā'shŭn* [F.—L.]: a meeting convened of clergy or heads of a university; a convention, synod, or council.—SYN. of 'convoke': to convene; summon; call; assemble;—of 'convocation': assembly; meeting; council; congregation; congress; diet.

CONVOLUTE, a. *kŏn'vŏ lôt*, or CON'VOLU'TED, a. *-lō'tĕd* [L. *convolūtus*, rolled together—from *con*, *volūtus*, rolled: It. *convolto;* F. *convoluté*, rolled or curled]: rolled together; rolled upon itself or on another thing; twisted. CON'VOLU'TION, n. *-lō'shŭn*, the act of rolling or winding, as a thing on itself or one thing on another; a winding or twisting.

CONVOLVE, v. *kŏn-vŏlv'* [L. *convolvĕrĕ*, to roll together—from *con*, *volvĕrĕ*, to roll]: to roll or wind together; to roll or twist one part on another. CONVOLV'ING, imp. CONVOLVED', pp. *-vŏlvd'*.

CONVOLVULUS, n. *kŏn-vŏl'vū-lŭs* [L. that which rolls or twines round (see CONVOLVE)]: the flower bindweed, an extensive and widely distributed genus of twining or trailing plants, ord. *Convolvulā'cĕæ; C. arven'sis* and *C. soldanel la* are indigenous, and *C. tricolor* is the minor convolvulus of seedsmen.

CONVOL'VULUS [Lat. *convolvo*, to twine together]: genus of plants, type of the exogenous nat. ord. CONVOLVULACEÆ. This order contains nearly 700 known species, herbaceous and shrubby; generally with a twining stem

and milky juice; large and beautiful flowers; a 5-partite calyx; a monopetalous corolla, with regular 5-lobed and plaited limb; five stamens; the ovary free, with 1–4 cells and few ovules; the fruit a capsule, sometimes succulent. The plants of this order are very abundant in the tropics, but comparatively rare in cold climates. Many are cultivated as ornamental plants, particularly species of *Convolvulus* and *Ipomœa*. The acrid milky juice is often strongly purgative; and jalap and scammony are products of this order. Some species, however, have large farinaceous

Convolvulus:
a, part of stem with leaves and flower; *b*, a flower-stalk and flower, the corolla and stamens removed.

roots, capable of being used as food, of which the Batatas (q.v.), or Sweet Potato, is most important. A few are known by the name of BINDWEED. *C. arvensis* is a troublesome weed in some sandy soils, and *Calystegia sepium* in richer soils: the former has rose-colored fragrant flowers, the latter large white flowers. Both are ornamental; the latter is often planted to cover posts and trellises. *C. scammonia* yields scammony, and the root of *C. panduratus* is used as a purgative in the United States. *C. scoparius*, a shrubby species, native of the Canary Isles, yields one of the kinds of wood called Rosewood, which has a strong smell of roses.

CONVOY, v. *kŏn-voy'* [F. *convoyer*, to attend, to escort —from mid. L. *convĭārĕ*, to convoy—from L. *con*, *vĭă*, a way (see CONVEY)]: to attend on the way for protection either by sea or on land, as war-ships accompanying a fleet of merchant-vessels in time of war; to accompany; to escort: N. *kŏn'voy*, the protection of an attending force either on sea or land; the attendant protecting force; act of attending as a defense; that which is protected, as a fleet of vessels; an escort; in *military service*, a C. is, properly,

a train of wagons laden with provisions or warlike stores; the term, however, is applied also to the detachment of troops, or escort, appointed to protect such a train: in *OE.*, conveyance. CONVOY'ING, imp. CONVOYED', pp. *-voyd'*.

CONVULSE, v. *kŏn-vŭls'* [L. *convulsus*, torn into several parts, convulsed—from *con*, *vulsus*, plucked or torn away: It. *convulso;* F. *convulsé*, subject to convulsions—*lit.*, to pluck or tear violently into parts]: to shake by violent irregular action, as in excessive laughter; to affect by irregular spasms, as in agony from grief or pain. CONVUL'SING, imp. CONVULSED', pp. *-vŭlst'*. CONVUL'SION, n. *-vŭl'shŭn* [F.—L.]: any violent and involuntary contraction of the parts of the body, as in fits; any violent and irregular motion—used more frequently in the *plu.:* ADJ. suffering from convulsions, as a convulsion-fit. CONVUL'SIVE, a. *-sĭv*, that produces or is attended with convulsions; that is attended with a strong unrelaxed grasping; causing twitches or spasms. CONVUL'SIVELY, ad. *-lĭ*. CONVUL'SIVENESS, n.—SYN. of 'convulse': to disturb; tear; rend; shake; agitate; — of 'convulsion': commotion; tumult; agitation; disturbance.

CONVULSIONARIES, *kŏn-vŭl'shŭn-a-rĭz*, or CONVUL'SIONISTS: fanatical sect of Jansenists who sprang up in France about 1730. Their meeting-place was the churchyard of St. Medardus, in a suburb of Paris, where was the tomb of a certain Francis of Paris, who died 1727, and was reckoned very holy by the Jansenists on account of his extravagant asceticism. At this tomb, a multitude of people poured forth fanatical prayers, preachments, and prophesyings. Miracles are also alleged to have been performed, for proof of which we are referred to a work written by M. Montgeron, a French senator, and entitled *La Verité des Miracles operés par l intercession de François de Paris* (Paris 1737). After 1731, the fanaticism of the C. increased to utter madness. 'They threw themselves into the most violent contortions of body, rolled about on the ground, imitated birds, beasts, and fishes, and at last, when they had completely spent themselves, went off in a swoon. In 1733, the king issued an order for the imprisonment of these fanatics, but it was found impossible to put a complete stop to the mischief. They took to predicting the downfall of the throne and the church, which prophecy the French Revolution appeared to fulfil. They were not much heard of in Paris after the middle of the last c., but have occurred in country-places at various times in the present century. They brought Jansenism into so much disrepute, that Voltaire declared the tomb of Francis the grave of Jansenism.

CONVUL'SIONS: form of disease frequently affecting infancy, in which the body is thrown into violent spasmodic contractions, the sensibility and voluntary motion being for a time suspended. A fit of C. may last from a few minutes to some hours, and may readily prove fatal, if not relieved within a short period. The first symptom observed is often a twitching of particular muscles or groups of muscles, and a change in the habitual expression or color of the face, with

distension of the features, and turning of the globes of the eyes suddenly upwards. The fingers are sometimes clenched in the palm, and the feet turned inwards; sometimes, however, C. occur absolutely without warnings of this kind, and even in the midst of perfect apparent health. Their cause is usually to be found in some source of irritation, capable of producing fever if long continued; as, for instance, disordered dentition, worms in the intestine, hooping-cough, etc. Most epidemic fevers are also apt to be attended, in children, by C. in their early stages; and diseases of the brain and its membranes at every stage of their progress. C. are greatly promoted by bad ventilation and injudicious feeding, with deficient exercise; and a great part of the cure consists in discovering and removing the causes of the disease.

When a child is suddenly siezed with C., or with a tendency to spasm, such as twitching of the features, or contractions of the fingers and toes, it should be placed at once in a very free current of air, with its feet toward the fire; the extremities should be kept warm, and a cold lotion may be applied to the head, especially if there is much flushing of the face; a little castor oil may be given if the bowels are confined; and if there is flatulence, the belly may be rubbed with a warm hand, or with some simple stimulating liniment, such as camphorated oil. Not much more can be done without medical assistance; but in the event of the case being very serious, and medical aid at a great distance, it might perhaps be right to take the risk of causing the child to inhale a little chloroform, great care being taken that plenty of air, also, is admitted to the lungs. The strictly medical treatment commonly consists in the administration of medicines adapted to the state of the bowels, with the application of cold to the head, and sometimes the inhalation of chloroform. Leeches and bleeding are very rarely useful, though too often employed.

C. are rare among horses and cattle. In young dogs, however, they frequently occur from intestinal worms, disordered digestion, or in connection with distemper or other debilitating diseases: they usually disappear when their special causes are removed.

CON'WAY: river in n. Wales, 30 m. long—noted for the bold romantic scenery along its higher, as well as the rich beautiful scenery along its lower course. It rises in a small mountain-lake where the three counties, Merioneth, Denbigh, and Caernarvon meet, and runs n.w., n.e., and n., past Llanrwst, Trefrhiw, and Conway, to Beaumaris Bay in the Irish Sea. It receives many rapid mountain-streams. In the lower 12 m. of its course it is a large, winding, smooth stream, up which the tide flows, and is navigable for vessels of 100 tons. At Conway it is half a mile broad at spring-tides, which rise here 21 to 24 ft. The C. has been famous for its pearls since Roman times.

CONWAY, *kŏn'wā*, or ABERCONWAY, *ăb-ĕr-kŏn'wā:* seaport town of Caernarvonshire, n. Wales, on the estuary of the Conway, here crossed by a fine tubular, and a suspen-

sion bridge, 22 m. n.e. of Caernarvon. The town, triangular in form, is beautifully situated on a steep slope on the left bank of the Conway, and is surrounded by walls 12 ft. thick, with towers and battlements. The principal streets are well proportioned and regular, and contain several ancient houses. Conway Castle, one of the noblest castellated structures in Britain, stands on a precipice overlooking the river. It was built by Hugh Lupus, Earl of Chester, and rebuilt 1283 by Edward I., to check the Welsh. Its walls are 12 to 15 ft. thick, with eight vast towers, four of which are surmounted each by a slender turret. In 1646, the parliamentary forces took the castle, but did not injure it; but after the Restoration it was dismantled by the Earl of Conway. The Plâs Mawr, 'Great Mansion,' is a noble pile erected 1585, in the Elizabethan style, with the exterior and interior profusely ornamented with figures, coats of arms, scrolls, etc. The harbor is dry at low water. Conway was an opulent town until the great plague in 1607 almost depopulated it. A Cistercian abbey was founded here by Llywelyn ab Jorwerth, Prince of N. Wales. Llywelyn the Great, and several other princes and illustrious persons, were buried in it. The Castle Hotel occupies its site. Pop. 5,000.

CONWAY, Ark., county seat of Faulkner county: on the St. Louis, Iron Mountain & Southern railroad, about seven miles east of the bend of the Arkansas river at Sevier, and 25 miles northeast of Little Rock in an air line. The town has an extensive trade in cotton, lumber, and flour. It is lighted by electricity, and governed by a mayor and council. The educational advantages are among the best of any of the agricultural towns of the state. The Methodist Episcopal church South maintains Hendrix college, established in 1884. The town was founded in 1871. Pop. (1910) 2,794.

CONWAY, N. H., a town in Carroll county, famous for the beauty of its natural scenery, which makes its villages among the most popular summer resorts in the White Mountain region. The town lies along the Saco river, on the Boston and Maine R.R., about 75 miles north by west of Portsmouth. There are extensive granite quarries in the town, and a few lumber mills. Pop. (1910 est.) 3,180.

CON'WAY, Hugh. See Fargus, Frederick John.

CONWAY, Katherine Eleanor, American journalist and poet: b. Rochester, N. Y., 1853, Sep. 6. Since 1883 she has been an editor of the Boston Pilot. Her published books include: *On the Sunrise Slope* (verse); *Watchwords from John Boyle O'Reilly* (edited); *A Dream of Lilies* (verse); *A Lady and her Letters; Making Friends and Keeping Them; Questions of Honor in the Christian Life; Bettering Ourselves; New Footsteps in Forbidden Ways* (travel sketches); *Other Ways*, a novel; *Lalor's Maples*, a novel, with Mrs. Erskine Clement; *Christian Symbols and Stories of the Saints* (1886); *The Christian Gentlewoman* (1904).

CONWAY, Moncure Daniel, American clergyman and author: b. Stafford county, Va., 1832, March 17. He was graduated at Dickinson college in 1849, entered the Methodist ministry in 1850, and later studied at the Harvard Divinity school. He held Unitarian pastorates in Washington, D. C., and Cincinnati. From 1863 to 1884 he was minister at South Place Chapel, in London, England, and again, 1892-7. His published books include: *Tracts for To-day* (1857); *The Rejected Stone* (1861); *The Golden Hour* (1862); *Testimonies Concerning Slavery* (1864); *The Earthward Pilgrimage* (1870); *Sacred Anthology* (edited) (1872); *Idols and Ideals* (1874); *Travels in South Kensington* (1875); *Demonology and Devil Lore* (1879); *The Wandering Jew* (1880); *Thomas Carlyle* (1881); *Emerson at Home and Abroad* (1882); *George Washington and Mount Vernon; Omitted Chapters of History Disclosed in the Life of Edmond Randolph* (1887); *Pine and Palm*, a novel (1887); *Life of Nathaniel Hawthorne* (1890); *Prisms of Air*, a novel (1891); *Life of Thomas Paine* (1892); *Barons of the Potomac and the Rappahannock* (1892); *Centenary History of South Place Chapel* (1893); *Solomon and Solomonic Literature* (1899); *Autobiography* (1904). He edited the *Works of Thomas Paine* (1893-6).

CONWAY, Thomas, Count de: 1733, Feb. 27.—abt. 1800; b. Ireland: general. After receiving his education in France, he served in the French army till 1777, when he came to the United States, was appointed a brig.-gen. in the revolutionary army May 13, took part in the battles of Brandywine and Germantown, and joined the conspiracy to deprive Washington of the command of the army. Through the influence of the commander's enemies in congress, his promotion to maj.-gen. was confirmed 1777, Dec. 14, in spite of Washington's disapproval and opposition. Soon afterward, the extent of his intrigues became known, and he offered a conditional resignation. He was informed that his resignation would be accepted without conditions, and was thus forced from the army. Gen. Cadwalader challenged him to a duel for his action against Washington, and severely wounded him 1778, July 22. Returning to France he wrote Washington an apology, reentered the French military service, became a field marshal, count, and gov. of Pondicherry and the French colonies in Hindustan, and fled from France during the revolution of 1792.

CONWAY, Sir William Martin, English explorer and mountain climber: b. Rochester, Eng., 1856. He was educated at Trinity College, Cambridge; was university extension lecturer 1882-5; professor of art at University college, Liverpool, 1885-8; and from 1901-4 was slade professor of fine arts at Cambridge. In 1892 he travelled extensively in the Himalayas, and in the Alps in 1894; he explored the interior of Spitzbergen 1896-7, and the Bolivian Andes in 1898, as well as the glaciers of Tierra del Fuego. Among the high peaks he has ascended are one

in the Himalayas of 23,000 feet, and Aconcagua, Illimani, and Sorata in the Andes. He was knighted in 1895 and received a gold medal for mountain surveys at the Paris exhibition in 1900. He has published: *Woodcutters of the Netherlands in the 15th Century* (1884); *Gallery of Art of the Liverpool Royal Institution* (1885); *The Artistic Development of Reynolds and Gainsborough* (1886); *Early Flemish Artists* (1887); *Literary Remains of Albrecht Durer* (1889); *Dawn of Art in the Ancient World* (1891); *Climbers' Guide Books to the Pennine and Leopontine Alps*, etc. (1890); *Climbing and Exploration in the Kara-Koram-Himalayas* (1894); *The Alps from End to End* (1895); *The First Crossing of Spitzbergen* (1897); *With Ski and Sledge over Arctic Glaciers* (1898); *The Bolivian Andes* (1901); *The Domain of Art* (1902); *The First Italian Renaissance* (1902); *Aconcagua and Tierra del Fuego* (1902); *Great Masters* (1904); *The Alps* (1904); *Early Dutch and English Voyages to Spitzbergen* (1904); etc.

CON'WAY CABAL, 1777-8, in American history: an intrigue headed by Horatio Gates, Charles Lee, Thomas Mifflin (then quartermaster-general), and James Lovell of Boston (Gates' confidant, and an unsparing contemner of Washington); with Thomas Conway as a tool. The prime object was to displace Washington by Gates; and there were plenty of other ambitions which hoped to reap advancement in the overturn. It gained its momentum from that popular clamor for immediate success in a war, which settles into patience and fair judgment as the war proceeds, but rarely before cruel and irremediable wreck has been made of the repute of capable officers. Washington's magnificent use of his slender resources, against superior force, obstructionism, and treachery, was not appreciated; Gates, wrongfully accredited with the laurels of Saratoga, was the hero of the moment, believed to be capable of restoring good fortune; and much better men than the above—the Adamses, Dr. Rush of Philadelphia, etc.—were anxious to have him placed at the head of the army. In 1777, November, the Board of War was reconstituted: Gates was made president, with liberty to serve in the field at will—that is, put over Washington's head with power to supersede him; and shortly afterward Conway was made inspector-general, an indefinite position with limitless facilities for spite. Washington had previously opposed his promotion to major-general, on the confidentially expressed ground that he was an empty braggart and tireless beggar; and the angry and disappointed Conway, all impulse and vanity, joined the 'cabal' so hotly that it was known by his name. His appointment was meant by the head conspirators as an open snub to Washington, in hope of forcing him to resign at once, or by Conway's power of insult and annoyance. Lovell denounced Washington without stint; anonymous letters were circulated, disparaging him and exalting Gates. Finally Conway sent Gates a letter with a pungent epigrammatic sentence

vilifying Washington; Gates showed it to his aide, James Wilkinson, whose career lacks no incidents but creditable ones; Wilkinson while mellow repeated it to a staff officer of Lord Stirling whom he met on business; Stirling was told of it, and at once warned Washington what his brother officers were writing about him. Washington wrote to Conway that he had been told of the sentence in a letter of his to Gates; Conway was alarmed and let Mifflin know it; Mifflin wrote to Gates that a copy of one of Conway's letters to him must have fallen into Washington's hands, and he ought to be more careful. Gates jumped to the conclusion that Alexander Hamilton, Washington's adjutant, must have rummaged his papers on a visit to his camp in the north; and at once wrote to Washington that some of his letters must have been privately copied, and unprincipled scamps like this should be ferreted out for fear they might betray secrets to the enemy, and that he had sent a copy of Washington's note to Congress—the aim being to discredit Washington as keeping spies to pry into other men's correspondence. Washington saw through the game, and told Gates so plainly enough. He explained precisely where his information came from; adding that he had told no one but Conway, to let him know he was watched, and Lafayette, not wishing to give the British hopes through discords in the army. Gates wrote again, denying that he had ever received more than one letter from Conway, or that even that contained the sentence quoted, and declared Wilkinson's assertion a libel. Unfortunately his second letter was belied by his first, and Washington briefly wrote as much. Then Wilkinson, who had been made secretary to the board of war, challenged Gates, who denied that he had ever said any ill of him; Wilkinson was calmed till he afterward saw the letter in which Gates had given him the lie, when he wrote a furious letter to congress against Gates and resigned his place. By this time the whole plot was blown abroad, and had begun to disgust the public with the meanness and trickery of it all, and with the members. Then Gates undertook to send Lafayette on a senseless expedition to Canada, promising him abundant men and supplies; and so utterly failed of providing either, and the scheme was so disapproved by the public, that it pricked the Gates bubble. Conway resigned conditionally, and to his misery and despair was taken unconditionally; Gates and Mifflin were removed from the board of war, and Gates was assigned to the forts on the Hudson, with emphatic warning to report to Washington. The adherents or helpers of the cabal disclaimed all connection with it, and Conway shortly went to France.

CONY, or CONEY, n. *kō′nĭ* [Gael. *coinean:* L. *cunic′ŭlus:* F. *connil:* Ger. *kaninchen*]: old English name for the rabbit, but employed in the authorized and other versions of the Bible as the translation of a Hebrew word which certainly does not designate the rabbit. The C. of the Old Testament is with the greatest probability supposed to be

the Daman (q.v.) or ashkoko. The name C. is applied also to a simpleton. Coney-catch, v. in *old slang*, to cheat; to practice cheating. Co′ney-catch′ing, imp.: N. a cheating.

CONYBEARE, *kŭn′ĭ-bär*, John: 1692, Jan. 31—1755, July 13: b. Pinhay, Eng.: theologian. He graduated at Oxford, was ordained 1716, became a preacher to the king at Whitehall, master of Exeter College 1730, dean of Christ Church 1732, and bishop of Bristol 1750. He published numerous sermons which attracted wide attention, notedly those on *Miracles* and on *The Mysteries of the Christian Religion*, and 1732 brought out his *Defense of Revealed Religion*, in answer to Matthew Tindal's *Christianity as Old as the Creation* (1730). This work has been greatly admired, and gave him large fame as a theologian.

CONYBEARE, William Daniel: 1787-1857; b. near London: geologist and divine. He graduated at Oxford 1811, became a fellow of the Royal Soc. 1819, and discovered the fossil remains of plesiosaurus, an antediluvian monster 1821. He made extended examinations of the coal-fields and other strata of Great Britain, and a number of important discoveries in the science of geology. In conjunction with W. Phillips he published *Outlines of the Geology of England and Wales*. He published also a course of theological lectures 1836, delivered the Bampton lectures 1839, and became dean of Llandaff 1845.

CONYBEARE, William John: d. 1857, son of William Daniel Conybeare: English clergyman and essayist. He received a collegiate education, and became a fellow of Trinity College, Cambridge, and principal of the Collegiate Institution at Liverpool. He was also preacher in the chapel royal, Whitehall 1844. He published a religious novel entitled *Perversion: or the Causes and Consequences of Infidelity*, numerous essays, and his chapel royal sermons; and was associated with Rev. J. S. Howson in preparing *The Life and Epistles of St. Paul*, for which he made original translations of nearly all the epistles.

CONYZA, *kō-nī′za:* genus of plants of the nat. ord. *Compositæ*, sub-order *Corymbiferæ*, of which one species, *C. squarrosa* (also known as *Inula conyza*), is of frequent occurrence through a great part of Europe. It has a stem two or three ft. high, downy ovato-lanceolate leaves, and yellow flowers. It receives the English names Fleabane and Ploughman's Spikenard, and has a strong peculiar smell, which is said to drive away fleas and gnats. In most of the languages of Europe, it bears names referring to this property.

COO, v. *kô* [imitation of the noise of doves: *OE., croo:* Dut. *korren:* Icel. *kurra*]: to cry as a pigeon or dove. Coo′ing, imp.: N. an invitation; as by the notes of the dove. Cooed, pp. *kôd*.

COOEY, v. *kô-ē′* [an imitative word—from the cry of the aborigines]: to utter a peculiar whistling sound: N. a peculiar whistling sound uttered by persons in the woods

or deserts of Australia in order to indicate to friends their exact position. Coo'eying, imp. *-ĭ-ĭng:* N. the peculiar whistling sound, etc. Coo'eyed pp. *-ĭd.*

COOK, v. *kûk* [an imitation of the noise of boiling water: L. *coquĕrĕ*, to prepare by fire: Ger. *koch*, a cook; *kochen*, to boil]: to boil; to dress food for the table; to prepare for any purpose: N. one whose occupation is to dress food for the table. Cook'ing, imp. Cooked, pp. *kûkt.* Cook'ery, n. *-ĕr-ĭ*, the art of preparing food for the table: Adj. pertaining to. Cooky, or Cookie, *kûk'ĭ* [Scotch]: a small cake or bun. Accounts have been cooked, business-books that have been altered and falsified with the view of deceiving.

COOK, Albert John, American naturalist: b. Owosso, Mich., 1842, Aug. 3. He graduated at Michigan Agricultural College 1862, and was professor of zoology and entomology there 1869-93, when he became professor of zoology in Pomona College, Claremont, California. He was one of the first to make kerosene emulsion (1877), and to advocate and demonstrate the use of the arsenites as a specific against the codling moth (1880). He has published: *Injurious Insects of Michigan* (1873); *Manual of the Apiary* (1876; 14th ed. 1886); *Silo and Silage; Maple Sugar and the Sugar Bush.*

COOK, Albert Stanburrough, American educator: b. Montville, N. J., 1853, Mar. 6. He graduated at Rutgers College 1872, and studied at Göttingen and Leipsic 1877-8, London and Jena 1881-2. He was professor of English in the University of California 1882-9, when he became professor of the same in Yale University. He is best known as an Anglo-Saxon scholar, and as an indefatigable editor of Anglo-Saxon and English literature texts and collections for use in high schools and colleges. His chief publications are: *Sievers's Old English Grammar* (translated) (1885); *The Phonological Investigation of Old English* (1888); *First Book in Old English* (1894); *Glossary of the Old Northumbrian Gospels* (1894); *Biblical Quotations in Old English Prose Writers Part* 1 (1898); a striking presidential address before the Modern Language Association in 1898; *The Province of English Philology* with C. B. Tinker, *Select Translations from Old English Poetry* (1902) with Benham, *Bacon's Advancement of Learning* (1904); *Specimen Letters* (1905); *Asser's Life of King Alfred* (1905); *The Dream of the Rood* (1905); *Yale Studies in English*, 28 Vols. (1898–1905); etc.

COOK, Charles, English Wesleyan clergyman: b. London 1787, May 31; d. Lausanne, Switzerland, 1858, Feb. 21. He entered the Wesleyan ministry in 1817. He travelled extensively in France and on account of his long continued evangelistic labors there is considered the founder of Methodism in France. See *Life* by J. P. Cook (1862).

COOK, Clarence Chatham, American journalist and art critic: b. Dorchester, Mass., 1828, Sep. 8; d. Fishkill,

N. Y., 1900, June 2. He contributed to the New York *Tribune*, a series of articles on American art 1863–9; and subsequently was its Paris correspondent. He was editor of the *Studio* until its suspension. He published: *The Central Park* (1868); *The House Beautiful* (1878); *Stools and Candlesticks, Essays on Beds and Tables*, and edited with notes a translation of the 7th German edition of Wilhelm's Lübke's *History of Art* (1878).

COOK, Edward Dutton, English novelist and dramatic critic: b. London, 1829, Jan. 30; d. there 1883, Sep. 11. He was dramatic critic to the *Pall Mall Gazette*, and the London *World*. His novels include: *Paul Foster's Daughter* (1861); *The Trials of the Tredgolds* (1864); *Hobson's Choice* (1866). Other works by him are: *Art in England* (1869); *Hours with the Players* (1870); *Nights of the Play* (1883).

COOK, Edward Tyas, English journalist: b. Brighton, Sussex, 1857, May 12. He was educated at Winchester College, and New College, Oxford, and was subsequently on the editorial staffs of the *Pall Mall Gazette* 1890–2; *Westminster Gazette* 1893–6; and the London *Daily News* 1896–1901. He has published: *Popular Handbook to the National Gallery; Studies in Ruskin; Popular Handbook to the Tate Gallery; The Rights and the Wrongs of the Transvaal War* (1901); etc.

COOK, Eliza, English writer of verse: b. Southwark, 1818; d. Wimbledon, Surrey, 1889, Sep. 24. She began at an early age to contribute articles to various periodicals, and her first volume of verse, which appeared in 1840, was very successful. In 1849 she published *Eliza Cook's Journal*, which appeared weekly until 1854. She published *New Echoes, and other Poems* (1864), and in the same year received a pension from the Civil List. By their simplicity of theme and treatment her poems obtained a large measure of popularity in England and America. Her most familiar poem is *The Old Arm Chair*.

COOK, Francis Ames, American naval officer: b. Northampton, Mass., 1843, May 10. He graduated at Annapolis 1863, and served for two years with Farragut in the West Gulf squadron. He became lieutenant-commander 1868; commander 1881, captain in 1896, and rear-admiral and retired 1904. During the Spanish-American war he commanded the Brooklyn, the flagship of Commodore Schley's flying squadron, which took so conspicuous a part in the battle of Santiago, 1898, July, when Cervera's fleet was destroyed.

COOK, Frederick Albert, American physician and explorer; b. Callicoon Depot, Sullivan county, N. Y., 1865, June 10. He graduated at New York University 1890. He was surgeon of the Peary Arctic expedition 1891–2, and of the Belgium Antartic expedition 1897–9. He has received the decoration of the Order of Leopold, the gold medal of the Belgian Royal

Society, and the silver medal of the Belgian Royal Geographical Society. He has written articles for the leading magazines, describing life in the polar regions, and a valuable account of his Antartic experiences and scientific observations, entitled *Through the First Antarctic Night* (1900).

COOK, George Hammell, American geologist: b. Hanover, N. J., 1818, Jan. 5; d. New Brunswick, N. J., 1889, Sep. 22. He graduated at Rensselaer Polytechnic Institute, Troy, N. Y., 1839, was senior professor there 1842–6, when he went to Rutgers College, remaining there until his death. At the different periods of his service he taught chemistry, natural history, geology, and agriculture. In 1864 he was elected vice-presiednt of the college, and appointed state geologist the same year. In 1880 he was made director of the New Jersey agricultural experiment station. His writings consist chiefly of special contributions to scientific journals, his annual reports as state geologist, and a *Geology of New Jersey*, published by that state in 1868.

COOK, Captain James: celebrated navigator: 1728, Oct. 27—1779, Feb. 14; b. Marton, in Yorkshire, England; son of an agricultural laborer. At first apprenticed to a haberdasher he afterward went to sea, and having spent some years in coasting-vessels, entered the royal navy, in which he soon rose to the rank of master. The charts and observations which he drew up as marine-surveyor of the coasts of Newfoundland and Labrador, introduced him to the notice of the Royal Soc., who offered him the command of an expedition to the Pacific Ocean, to make an observation of the transit of Venus over the face of the sun. Cook immediately accepted the offer, and set sail from Plymouth 1768, Aug. 26, in the *Endeavour*, a small ship of 370 tons. The expedition arrived at Tahiti (or Otaheite, as he named it) Apr. 13 in the following year; and the transit was witnessed in a most satisfactory manner June 3. Leaving Tahiti July 13, Cook visited New Zealand, which had not been touched at by Europeans for a century and a quarter; and after exploring the coasts for six months, sailed westward, reaching (1770, Apr. 19) New Holland, now Australia, which he called New South Wales, and took possession of in the name of Great Britain. Having explored a large portion of the coast, he steered for New Guinea, passing between Australia and that Island. and thus proving what had heretofore been doubted, that the two were distinct islands. Continuing his voyage by Java, Batavia, and the Cape of Good Hope, Cook anchored in the Downs 1771, June 12. This voyage, besides vastly increasing geographical knowledge—one of the important results in this respect being, that it proved that neither Australia nor New Zealand belonged to the antartic, or other southern continent at this time supposed to exist, and that to the northward of lat. 40° s. there was no continent—also added not a little to the sciences of botany and astronomy.

A second voyage for the discovery of what was then called the *Terra Australis Incognita,* which was now believed to lie in higher latitudes than had hitherto been explored, was undertaken by Cook in the year of his return; and the expedition, consisting of two ships—the *Resolution* and the *Adventure*—sailed from Plymouth 1772, July 13. In Captain Cook's three years' navigation of the Pacific and Southern oceans on this voyage, he sailed upward of 20,000 leagues, and proved the non-existence of land of any extent between the 50th and 70th parallels. Cook arrived in England again 1775, July 30. So admirable had been his arrangements for the health of his crew, that during the whole voyage he lost only one man by sickness; and so skilful his seamanship, that not a spar of any consequence was lost. Cook wrote an account of his second voyage. The belief in a practicable North-west Passage, notwithstanding the failure of attempts extending over two centuries, still held possession of men's minds; and Cook had no sooner returned from his second voyage, than he offered his services to the Admiralty, who had resolved on another effort for the discovery. They were gladly accepted, and Cook determined to seek the passage by the way of Behring's Strait, instead of by Baffin's Bay and Davis' Strait, the routes formerly attempted. In his old ship, the *Resolution,* accompanied by Captain Clerke in the *Discovery,* Cook sailed from Plymouth 1776, July 12. In this last voyage, Cook met his death at the hands of savages, on the island of Hawaii, while endeavoring to recover a boat which had been stolen form the *Discovery.* Before this tragical event Cook had made valuable additions to the geographical knowledge of the coasts of America and Asia, in the region of Behring's Strait. The news of his death occasioned deep and general regret in England. The king granted his widow a pension of £200, and each of his children £25; while the Royal Soc. did honor to his name, by having a gold medal struck in his commemoration. Cook was one of England's greatest navigators. A practical and scientific seaman, he was also a sagacious, self-possessed commander, kind though strict to his crew, and marked by indomitable perseverance and ready decision.

COOK, Joel, American journalist: b. Philadelphia, Pa., 1842, Mar. 20. He was admitted to the Philadelphia bar 1863, but adopted journalism as a profession. He was a war correspondent with the Army of the Potomac, 1862–3, went on the editorial staff of thePhiladelphia *Public Ledger* 1865, and has been its financial editor since 1883. He is also president of the City National Bank in Philadelphia. He has published: *The Siege of Richmond, May–June* (1862); *A Holiday Tour in Europe* (1879); *An Eastern Tour at Home; Brief Summer Rambles near Philadelphia* (1881); *England, Picturesque and Descriptive* (1882); *America, Picturesque and Descriptive* (1900); *France, Switzerland, and the Rhine; A Visit to the States; The Siege of Richmond;* etc.

COOK, Joseph, American lecturer and author: b. Ticonderoga, N. Y., 1838, Jan. 26; d. there 1901, June 24. He was graduated at Harvard and Andover, and after three years' preaching went to Europe in 1871, where he studied in Germany, and made a tour of the Mediterranean countries. In 1873 he began a series of 'Monday Lectures' in Boston, which, endeavoring to harmonize science and religion, and discussing social and political questions, became very popular; and in 1880 began an extended lecturing tour around the world. Besides his lectures, he published a number of works on such subjects as *Biology* (1877); *Transcendentalism* (1877); *Marriage* (1878); *Heredity* (1879); *Labor* (1880); *Socialism* (1880); *Occident* (1884); *Orient* (1886).

COOK, Mabel Collins, English novelist: b. Guernsey 1851. She was the oldest child of Mortimer Collins (q.v.), the novelist, and was married to Keningale Cook in 1871. Her writings, which include works on theosophy as well as novels, comprise: *The Star Sapphire; The Prettiest Woman in Warsaw; Blossom and Fruit; A Debt of Honor; Vivian Romance; The Story of the Year; Light on the Path; The Idyll of the White Lotus; Through the Gates of Gold;* etc.

COOK, Theodore Andrea, English journalist and author: b. Exmouth, Devonshire, 1867, May 28. He was educated at Wadham College, Oxford, and was on the editorial staff of the *Saint James's Gazette* 1897-1900. He has published: *Old Touraine; Rouen* in *Mediæval Towns Series; Tobogganning at Saint Moritz; A History of the English Turf; An Anthology of Humorous Verse; The Spiral in Nature and Art,* etc.

COOK, Thomas, English excursionist: b. Melbourne, Derbyshire, 1808, Nov. 22; d. 1892, July 19. In the earlier portion of his career he was prominently identified with the temperance cause, but becoming convinced that travelling habits on the part of persons in general might be induced by energetic efforts to that end, he began 1841, July 5, by running an excursion train between Leicester and Loughborough on the Midland Railway, England. This was the first publicly advertised excursion train in England. From this small beginning the enormous business of Thomas Cook & Son, Managers of Tours and Excursions (known as 'Cook's Excursions') was subsequently evolved. To John Mason Cook, son of the founder (b. 1834, January; d. 1899, Mar. 4), the present scope of the business is mainly due. The existing firm is composed of the three grandsons of the founder. To such an extent has the 'Cook's Excursion' business developed that the company now has agencies all over the globe, the head office for the United States being in New York.

COOK, William Wilson, American lawyer: b. Hillsdale, Mich., 1858, Apr. 16. He graduated at the University of Michigan 1880, and from its law department in 1882. He is general counsel for the Postal Telegraph Cable Company, and the Commercial Cable Company.

He has written: *Treatise on the Law of Stock and Stockholders as Applicable to Railroad, Banking, Insurance, etc., Corporations* (1887); *Trusts: their Character, Legality, and Mode of Organization* (2d ed. 1888).

COOK, Mount, the highest peak of Australasia: is one of the southern Alps near the centre of the range, on the west side of the South Island of New Zealand. It is 12,349 feet high, is covered with perpetual snow (the snowline being 3,500 feet lower than in Switzerland); is difficult of access, and was scaled for the first time by the Rev. W. S. Green on 1882, Mar. 2.

COOKE, George Frederick, English actor: b. Westminster 1756, Apr. 17; d. New York 1811, Feb. 26. He made his first public appearance at Brentford in 1776; and in the period between 1784 and 1800 became very popular in the English provinces and in Ireland, attaining a front rank in his profession. From 1801 to 1810 he played at Convent Garden both in comedy and in tragedy, and rivaled Kemble in the public favor. His best characters were Richard, Shylock, Iago, Sir Giles Overreach, and Sir Pertinax MacSycophant. In 1810 he visited the United States and appeared before enthusiastic audiences in the chief cities. A monument marks his grave in St. Paul's churchyard in New York city, erected in 1821 by Edmund Kean, who regarded Cooke as the greatest of actors.

COOKE, George Willis, American Unitarian clergyman and author: b. Comstock, Mich., 1848, Apr. 23. He was educated at Olivet College, Michigan, studied for the Unitarian ministry at Meadville Theological School, and was ordained in 1872. He has since held Unitarian pastorates in Wisconsin, Michigan, Indiana, and Massachusetts. He has published: *Ralph Waldo Emerson, his Life and Writings* (1881); *Life of George Eliot* (1883); *Poets and Problems; The Clapboard Trees Parish, Dedham: a History* (1887); *A Guide Book to the Poetic and Dramatic Works of Robert Browning* (1891); *The Spiritual Life* (1893); *Biography of John Sullivan Dwight* (1898); *History of Unitarianism in America* (1903); etc.

COOKE, Jay, American capitalist, known as the 'Financier of the Rebellion': b. Sandusky, Ohio, 1821, Aug. 10; d. Ogontz, Pa., 1905, Feb. 16. He was educated in private schools, and even as a schoolboy was remarkably proficient in algebra and the higher mathematics. At the age of 13 he had entered mercantile life as a clerk in a Sandusky store, there displaying unusual ability as a bookkeeper. In 1835 he went to Saint Louis to engage in mercantile business. In 1838 he entered the banking house of E. W. Clark & Company in Philadelphia, and so rapidly mastered the intricacies of finance that before he became of age he was given power of attorney for the firm. Upon his retirement from that firm he was engaged in a general banking business until 1861, when he united with his brother-in-law under the name of Jay Cooke & Company. From

1861–5 his house acted as agent for the government in floating the Civil War bond issues to the extent of $2,500,000,000, including the 5–20 loan of $515,000,000 (1862 Feb), the 10–40 loan of $200,000,000 (1864, Mar.), the 7–30 loan of $829,992,500 (1864 June to 1865 Mar.), and others. These services he rendered to the nation for so small a commission there was practically no profit. A long period of successful operations followed the war, and then the firm became fiscal agents of the Northern Pacific Railway Company, advancing large sums of money on its bonds, but in the financial panic of 1873, being unable to realize a sufficient amount on the bonds to tide them over the trouble, on September 18, suspended business and eventually went into bankruptcy. The value of the bonds afterward greatly increased. Mr. Cooke not only regained his fortune, but paid his creditors both principal and interest. Mr. Cooke was also largely interested in western lands and securities.

COOKE, John Esten, American novelist: b. Winchester, Va., 1830, Nov. 3; d. near Boyce, Va., 1886, Sep. 27. He published: *The Virginia Comedians* (1854); *Leather Stocking and Silk* (1854); *Hilt to Hilt* (1869); *Life of General Robert E. Lee* (1871); *Virginia, a History of the People; My Lady Pokahontas* (1885); etc.

COOKE, John Hunt, English Baptist clergyman: b. London, 1828, June 4. He was educated at Stepney College and after entering the Baptist ministry held pastorates at Clerkenwell, Southsea, and Richmond. He was 20 years editor of *The Freeman* and the *Baptist Visitor*. He has published: *The Preacher's Pilgrimage: a Study of Ecclesiastes; A Grammar of Harmony; The Work of the Holy Spirit; A History of Baptism;* etc.

COOKE, Philip Pendleton, American writer: b. Martinsburg, Va., 1816, Oct. 26; d. 1850, Jan. 20. He graduated at Princeton in 1834, and began the practice of law before he was 21. He devoted himself chiefly to literature and hunting, becoming a popular writer of lyric verse. He was a frequent contributor to the *Southern Literary Messenger* and his story, *The Chevalier Merlin,* was appearing in it at the time of his death. Of his poems the best known are: *Florence Vane,* which has frequently been set to music, and *Rosa Lee;* and of his short stories, *The Crime of Andrew Blair,* and *The Gregories of Hackwood.* His sole publication in book form was *Troissart Ballads, and Other Poems* (1847).

COOKE, Philip Saint George, American military officer: b. near Leesburg, Va., 1809, June 13; d. Detroit, Mich., 1895, Mar. 20. He was graduated at West Point in 1827 and rose to the rank of brigadier-general. In the Mexican war he commanded a regiment in the city of Mexico, and in the Civil War sided with the Union and greatly distinguished himself in the Peninsular campaign. He was the author of works on tactics, and of *Scenes and Adventures in the Army; Conquest of New Mexico and California* (1878).

COOKERY.

COOK'ERY: art of preparing food for the table, by heat. In ancient times, the occasion of a banquet appears to have arisen chiefly in a sacrifice to the gods, when a part of the victim was brought to the dwelling of the sacrificer, and was cooked for the feast. Birthdays, funerals, and victories also were celebrated in this manner. 'The Persians,' says Herodotus, 'were accustomed to honor, above all others, that day on which they were born, when the rich among them would sacrifice an ox, a horse, or a camel, which they roasted whole in ovens, while the poorer class gave only the smaller animals, as sheep. Yet the Persians were not great eaters of meat, but consumed much sweet food, and did not use salt.' The appendages to the higher order of banquets were most magnificent, and in quantity and display very expensive. Herodotus says on this head, 'that the Greeks who invited Xerxes to supper all came to the extremity of ruin; and that, wherever he took two meals, dining as well as supping, that city was utterly ruined.'

The Egyptians, it is said, were great bread eaters. Though they possessed wheaten-flour of the finest sorts, they do not appear to have used it for their common bread, which was made of spelt, or of the centre of the lotus dried and pounded. Fish they salted and dried in the sun; quails, ducks, and small birds they salted and ate raw. We read of their roasting and boiling the flesh of the ox. Large flocks of geese and of fowls were kept by them for use at table, hence their plan for the artificial hatching of eggs. 'Fish was used by all classes except the priests, but the staple food of the people consisted of vegetables, of which they had a large supply.' Herodotus mentions their making beer from barley, which they called *lythus*. We may still see the form in which their food came to table: ducks, loaves made round, and some biscuits and cakes, which have been taken from Egyptian tombs, are in the British museum. Apollonius, who wrote a treatise on the feasts of the Egyptians, says that they ate in a sitting posture, using the very simplest and most wholesome food.

There appears to have been considerable difference as to the manner in which good eating was appreciated in different parts of Greece. The Athenian meals are ridiculed by the comedians for their parsimony. After the Homeric age of simplicity, in which roast and boiled meat seems to have sufficed the kingly table, a diversity of preparation was obtained in cooking, and certain epicureanism displayed in the quality, seasoning, and method of dressing food. The names of many authors of C. books are preserved in the writings of Athenæus; that of Archestratus, who is called the guide of Epicurus in his pleasures, and styled the inventor of made dishes, being the most renowned.

Fish was a principal article of food with all classes of Greeks; but with the wealthier, much skill and delicacy were used in cooking it, and choice and expensive sorts were sought. Archestratus writes of 'a boiled torpedo

done in oil and wine, and fragrant herbs, and some thin grated cheese.' Fish, stuffed with forcemeat and fried, boiled in pickle, baked in fig-leaves soaked in oil, cooked in hot ashes, etc., are among the recipes recorded. Large quantities of salt-fish were brought from the shores of the Euxine and the Hellespont; and this, with meal, cheese, and onions, was the chief food of the armies and navies on service. The Greeks boiled and roasted the flesh of sheep, pigs, lambs, and goats. They had poultry, small birds, and game, and sausages made of blood, partaking of the character of black-puddings. The bread made at Athens was the most celebrated; it was sometimes household, but chiefly bought in the market, and was made in great variety, as pan-loaves, rolls, sweet loaves, etc. The bread eaten by the poorer classes was made of barley, and sometimes flavored with oil, honey, poppy-seed, etc. Athenian cheese-cakes also were famous; and they had honey and sesame-cakes, which, with fresh and dried fruits, as figs, almonds, olives, and nuts, seem to have been partaken of after dinner. They consumed vegetable food also in abundance, and had cabbage, onions, lettuce, etc.

In the Greek house there was no regular cook, though in the establishments of the wealthy several women were kept, to attend to the kitchen. The women, in general, saw to the requirements of the table, and even the lady of the house was not idle. Cooks stood in the market at Athens, ready to be hired for particular occasions; the most celebrated were those of Sicily; they were probably persons of some importance.

'To roast some beef, to carve a joint with neatness,
To boil up sauces, and to blow the fire,
Is anybody's task; he who does this
Is but a seasoner and broth-maker;
A cook is quite another thing. His mind
Must comprehend all facts and circumstances:
Where is the place, and what the time of supper;
Who are the guests, and who the entertainer:
What fish he ought to buy, and where to buy it.'

Quoted by Athenæus from Dionysius, a comic poet.

In the early days of Rome, a gruel made of barley, and called *puls*, was the principle food of the people, and with green and other vegetables was, till later times, the usual fare of the inferior classes—meat being used sparingly. By degrees, however, came a taste for better eating; and after the Asiatic conquests luxury was imported. Lucullus introduced habits of epicureanism after his return from Asia; the gourmand Apicius earned for himself a deathless name. The wealthy Romans cared for the elegant serving of their table, as well as for the quality of viands placed before them. With them, as with the Greeks, fish was a necessity as well as a luxury: they took much trouble to procure their oysters, and gave large sums for other fish. We read of a mullet of six pounds sold for 8,000 sesterces (abt. $350), and of the rhombus or turbot from Ravenna being held in high estimation. They seem to have been as clever as the French in preparing *surprises*, and in carrying out *disguises* in their dishes. The *pistor*, who made the bread and pastry, and

the *structor*, who composed artificial figures of fruit or flesh, and who also arranged the dishes, seem to have shared the duties of the cook. We read of dainties, as ring-doves and fieldfares, hares, capons, ducks, peacocks, pheasants, and the livers of geese; also of such a formidable *pièce de résistance* as a 'huge boar, surrounded with sucking-pigs made in sweet paste, which were distributed among the guests.' The Romans prepared and cooked their food with oil to a great extent. Their meals probably consisted of two courses and a dessert, the first course being of materials intended to sharpen the appetite, and the second the 'brunt of war,' that is, a joint roasted or baked. The discovery or cultivation of vegetables, perhaps, gave rise to some proper names, as Lentulus, Fabius, etc. It is a Roman saying, that the number of persons at a repast should not be less than that of the Graces, nor more than that of the Muses. The Greeks and Romans used honey for the purposes for which we use sugar. The sugar-cane probably was cultivated in China, and its manufacture understood there; but the Greeks took it for a kind of concrete honey, and used it only for medicinal purposes.

Of ancient British C., nothing is known; it was probably extremely rude. Hares, poultry, and fish are said to have been forbidden as food. We do not find much mention of the art of C. in the Saxon chronicles. The Danes and Germans appear to have been great drinkers, and to have paid little attention to the preparation of their eatables. The Normans were more careful in these matters; some offices among them were held in right of the kitchen. In early English C. much use was made of the mortar. Oil and lard were used instead of butter. Several English C. books bear an early date, as *The Forme of Cury*, by Mr. Pegge, 1390; and others date as follows: Sir J. Elliott's book, 1539; Abraham Veale's, 1575; *The Widdove's Treasure*, 1625.

The C. of France was probably imperfect and rude, till the introduction of Italian tastes by the princesses of the House of Medici. The ancient use of oil was modified by the discovery made by the French, of dressing meat in its own gravy. In our own day, there is no denying that the French cook is a true artist. We may, if we please, impute the trouble he takes with the dressing of his meat to the inferiority of the material, but this can be said of meat only; the preparation of vegetables and fruits, which in France are of fine quality, is attended to with equal care. The great difference between French and the usual English and American C. consists in the fact, that they cook their meat much longer, considering that this renders it more digestible. They are thereby enabled to multiply dishes by altering or annihilating the original taste of the meat, and making it a vehicle for foreign flavors. The variety, daintiness, and grace of form which dishes thus acquire, is advantageously made use of by other nations when they admit such dishes to mingle with the heavier joints. But the English and American tastes prefer the integrity of the form and flavor of meats, considering that to be *overcooking* which the French think only sufficient, In economy, the French have a de-

cided superiority. The French cook throws nothing away. Instead of going to the butcher for meat for stock, he uses the trimmings for stock and glaze, and the skimmings of his boiled meats for purposes to which we apply butter or lard; and like a true workman, he produces great results from small means. This requires an education which few mistresses demand and few cooks obtain, but which, when achieved, justifies the expression of Voltaire:

Qu'un cuisinier est un mortel divin!

The estimation in which the services of a cook are held, may be known by the large salary attached to the office in great families, hotels, and club-houses. A visit to the kitchens of one of these establishments shows what a highly important post is that of *chef de cuisine*. There must be in such a person not only the necessary knowledge how things are to be done, but the power to organize and direct the work of the numerous assistants, as to the exact part they must fulfil at each moment of their long and busy day. These places, indeed, are excellent schools for cooks, where they can undergo that severe training, without which a thorough practical knowledge of the business cannot be attained. It is indeed to be regretted—because a source of so much disappointment, discomfort, and waste—that a knowledge of plain C., at least, is not more desired by mistresses for themselves. That acquirement, and household management generally, are important enough to be made part of the education of all classes. The poorer would thereby be enabled both to lay out their money profitably, and to prepare their food so that it might satisfy and nourish them; and the heads of establishments in the upper classes would be more in a position to direct, appreciate, or criticise the performance of the cook. A cultivated and elegant taste is as much shown in the arrangement of viands as in the furnishing and decoration of the choicest boudoir.

The art of C., as a branch of female education, has latterly engaged considerable attention; and there are in various cities establishments where young ladies receive this kind of instruction. Recently, a school of cookery has been attached to the South Kensington Museum, London. Cookery-classes are popular among young ladies in the United States. Efforts are made to teach C. also to the humbler classes of girls, but much in this respect remains to be done. For any shortcomings in cooking, however, the taste of the English, inherited to some degree in America, is in some measure accountable. The general practice of roasting large pieces of meat, which cannot be consumed while hot, causes no little waste, and is obstructive of improvement. The Scotch—who derive some part of their C., with many other usages, from the French—deal more in soup and boiled meat than the English, and their processes, while not less savory, are perhaps more economical.

Among many excellent books on C. are Miss Acton's *Cookery Book*, Webster and Parke's *Encyclopædia of Domestic Economy*, Mrs. Beeton's *Household Management*, also Soyer's work, and Francatelli's; *Meg Dods's Cookery* also is

excellent; and Miss Parloa's books are among the latest and the best. For cheapness and simplicity, Chambers's *Cookery for Young Housewives* (1*s.*) is commended: see FOOD: BOILING: ROASTING, etc.

ARMY COOKERY.—During the Crimean war, 1854-5, M. Soyer was sent out by the Brit. government to improve the miserable system of hospital and camp C., so far as military routine would allow. He devised new forms of stove, and constructed recipes for using to the best advantage all the available provisions for a camp. The officers at Sebastopol made a highly favorable report of Soyer's *field-kitchen*, a kind of camp-stove, with a caldron holding 12½ gallons: two such stoves would easily cook for a company of 100 men; both could be carried by one mule, with sufficient dry wood for three days' fuel. Though intended mainly for boiling, the apparatus afforded facilities for many varieties of cooking. When M. Soyer returned to England, he made a few improvements; and finally the apparatus presented itself as a sort of upright can, suitable for boiling, steaming, baking, roasting, stewing, and making tea or coffee; with 14 lbs. of fuel, one of these would cook for 50 men; and if 20 such stoves were placed near together, four cooks could serve for 1,000 men.

A committee which inquired on the subject of barrack economy some years ago, recommended that every large barrack should have a bakery with two ovens, where the men could learn to make and bake their own bread, and that the barrack-kitchens should be so furnished as to enable the men to bake their meat if so inclined, instead of being confined, as heretofore, almost wholly to boiled dinners. A school of cookery has been formed at Aldershot, where men are trained to act as sergeant-cooks, of whom there is now one to each regiment. His duty is to superintend and direct the operations of the soldiers detailed from the several companies to act as cooks.

Numerous forms of apparatus have been invented for baking and cooking food in the field. Several of them are based on modifications of Papin's Digester; such as the compressed steam cooking-pot of Captain Warren. Steam baking-ovens also have been successfully used; and apparatus has been devised for cooking while *the kitchen itself is on the march.* Similar improvements have been introduced in the U. S. military service.

COOK ISLANDS, otherwise known as the Harvey Archipelago. visited rather than discovered by the navigator whose name they bear, during his first voyage. They lie about midway between the Society and Navigator groups, near lat. 22° s. and long 158° w. The principal members of the cluster are Mangeia, Atiou, Harvey, and Raratonga. The natives, estimated at about 15,000, have been generally converted to Christianity; Raratonga, in particular, being one of the most successful missions in Polynesia.

COOKMAN, *kûk'man*, GEORGE GRIMSTON: 1800, Oct. 21—1841, Mar.; b. Hull, England: clergyman. He re-

ceived an academical education, came to the United States 1823, was engaged some time as a local Methodist preacher, returned to England for a business career, and again removed to the United States 1825. He joined the Philadelphia Methodist Episcopal conference 1826, and preached with great success in Pennsylvania, New Jersey, and the District of Columbia; was twice elected chaplain of congress, and preaching every Sunday morning in the hall of the representatives, attracted large audiences. He sailed for England 1841, Mar. 11, on the steamship *President,* which was never heard from again.

COOK'S INLET: gulf of the Pacific on the n.w. coast of America, between Prince William's Sound and Bristol Bay; lat. 58°—61° n., long. 151°—154° w.; explored by Capt. Cook 1778 in the vain hope of finding passage through it into the Arctic sea.

COOK'S STRAIT: discovered by Capt. Cook on his first voyage. It separates the n. and s. islands of the New Zealand group, and varies from 80 to 100 m. in width. This discovery dissipated the popular belief that New Zealand, as previously known, was merely a salient point of a great southern continent.

COOKTOWN: town, founded 1873, on the extreme n. of Queensland 1,050 m. n. of Brisbane; one of the chief ports of the colony. There are already handsome banks, schools, and public buildings. Near there are gold diggings and iron mines, and fisheries of beche de mer. Pop. (1891) 3,500, of whom 3,360 are Chinese.

COOL, a. *kôl* [Icel. *kula;* Dut. *koel,* a cold blast: Ger. *kühl;* Dan. *köl,* cool, fresh]: moderately cold; not excited by passion of any kind; not hasty; not retaining heat; indifferent; self-possessed; quietly impudent: N. a moderate state of cold; freedom from heat or warmth: V. to make moderately cold; to lessen heat; to allay passion of any kind; to moderate; to become indifferent; to make indifferent; to become less hot, angry, zealous, or affectionate. COOL'ING, imp. COOLED, pp. *kôld.* COOL'ER, a. less hot. N. that which cools; a vessel in which liquors are cooled: see BEER: DISTILLATION. COOL'LY, ad. *-lĭ.* COOL'NESS, n. moderate degree of cold; indifference. COOL'ISH, a. somewhat cool. COOL-HEADED, not easily excited; free from passion. TO BE KEPT COOLING ONE'S HEELS, to be kept waiting long.—SYN. of 'cool, a.': cold; frigid; gelid; calm; dispassionate; self-possessed; composed; impudent; alienated; deliberate; chilling.

COOLBRITH, INA DONNA, American librarian and poet: b. near Springfield, Ill., but while a young girl went to California, where she has since lived. She has been librarian of the Oakland Public Library (1874), the Mercantile Library of San Francisco, and since 1899, of the Bohemian Club in the latter city. She has published: *A Perfect Day, and Other Poems* (1881); *Songs from the Golden Gate,* and contributions in the *Overland Monthly.*

COOLEY, *kō'lĭ*, Le Roy Clark: chemist: b. Point Peninsula, N. Y., 1833, Oct. 7. He graduated at Union College 1858; took a scientific course there directly afterward; was prof. of natural sciences in the N. Y. State Normal School 1861-74; and became prof. of physics and chemistry in Vassar College 1874. He has published *A Text-Book of Physics* (1868); *A Text-Book of Chemistry* (1869); *Easy Experiments in Physical Science* (1870); *Natural Philosophy for High Schools* (1871); *Elements of Chemistry for High Schools* (1873); *The Student's Guide-Book and Note-Book* (1878); *The New Text-Book of Physics* (1880); *The New Text-Book of Chemistry* (1881); *The Beginner's Guide to Chemistry* (1886); *Laboratory Studies in Chemistry* (1894); *The Students Manual of Chemistry* (1897); etc.

COOLEY, Thomas McIntyre, ll.d.: lawyer: b. Attica, N. Y., 1824, Jan. 6; d. Ann Arbor, Mich. 1898, Sep. 12. He removed to Adrian, Mich., 1843; was admitted to the bar there 1846; practiced at Tecumseh, Mich., till 1848, when he settled in Adrian; was for some time editor of the *Watch-Tower* newspaper; and 1857 was designated by the state to be the compiler of its general statutes. During 1858–65 he was the reporter of the state supreme court; 1859 was appointed prof. of law in the University of Michigan; 1864 was elected a judge of the state supreme court to fill a vacancy; 1869 was re-elected for the full terms expiring 1877 and 85; and 1868–9 was chief justice of the court. In 1881 he was chosen prof. of constitutional and administrative law in the newly established School of Political Science in the University of Michigan, and subsequently became professor of American history, lecturer on constitutional law, and dean of the scientific school in the university. 1886, Dec. 16, he was appointed by Judge Gresham, of the U. S. circuit court, receiver of the Chicago division of the Wabash railroad system covering the lines in Illinois and Indiana, and a few days afterward was appointed by Judge Walker, of the U. S. district court, receiver of the lines within Ohio. 1887, Mar. 22, he was appointed by President Cleveland chairman of the interstate commerce commission, established by act of congress approved 1887, Feb. 4, and resigned 1891, Sep. 4. Cooley received his degree from the University of Michigan 1873. He published a *Digest of Michigan Reports* (1866); *The Constitutional Limitations which Rest upon the Legislative Power of the States of the American Union* (1868–71); editions with notes of Blackstone's *Commentaries* (1870); and Story's *Commentaries on the Constitution of the United States* with original chapters on the *New Amendments* (1873); *The Law of Taxation* (1876); *The Law of Torts* (1879); *General Principles of Constitutional Law in the United States* (1880); and *Michigan: A History of Governments* (1885); and, with others, lectures in *Constitutional History of the United States, as Seen in the Development*

of American Law (1889). He also prepared nearly all the legal articles in Appleton's *American Cyclopædia* (1873–6).

COOLIDGE, Susan: see Woolsey, Sarah Chauncey.

COOLIDGE, William Augustus Brevoort, American writer in England: b. near New York 1850, Aug. 28. He was educated in St. Paul's School, Concord, N. H., and Exeter College, Oxford, and was ordained to the priesthood of the Established Church in 1883. He was professor of English history at St. David's College, Lampeter, Wales, 1880–1; tutor at Magdalen College, Oxford, 1881–5, and curate of South Hinksey 1883–95. He is a member of various Alpine clubs and has published: *Swiss Travel and Swiss Guide Books* (1889); *The Adula Alps* (1893); *The Range of the Todi* (1894); *Guide to Grindelwald* (1900); *Guide to Switzerland* (1901); beside many contributions on Alpine topics to periodicals and cyclopædias.

COOLIE, or Coulie, n. *kô'lĭ* [Hind. *kúlí*, a laborer]: East Indian porter or carrier; a day-laborer. Originally, one of the aboriginal or hill tribes of Hindustan had the name of coolies. The term coolie is now used to denote emigrant laborers from India and China to tropical and other countries. The 'coolie trade,' as it was called, rose with the decline of the slave trade, and was an attempt to supply the place of the emancipated negroes with a class of laborers equally as cheap. The movement of Indian coolies began toward the close of the last century, but was confined to the Straits Settlements, Ceylon, and the neighboring islands, and has never attained great proportions in the western hemisphere. The Chinese coolie trade began in 1847 with the shipment of coolies to Cuba and Peru, each coolie being bound to eight years' service, nominally at about $4.00 a month and clothes and food. The abuses which sprang up in the trade rival the worst of the negro slave trade; and of the 4,000 coolies who were sent to the guano pits of Peru to 1860 not one ever escaped alive. In 1855 the trade was partially suppressed by the English governments in the East, but was carried on with greater energy by the Spaniards and Portuguese until 1866, when an agreement between England, France, and China imposed regulations on the traffic which checked it. The United States, the British Australian colonies, and British Columbia have passed severe restrictive measures against the coolie trade. See Chinese Exclusion Act.

COOM, n. *kôm* [Ger. *kahm*, mold: comp. F. *écume;* OF. *escume*, foam]: refuse matter such as collects in the boxes of carriage-wheels, or at the mouths of ovens; soot; coal-dust; culm: see Culm 2.

COOMASSIE, *kô-măs'sĭ:* capital of the kingdom of Ashantee, w. Africa; about 120 m. n.n.w. of Cape Coast Castle; in lat. 6° 35′ n., long. 2° 12′ w. Coomassie occupies the side of a rocky hill, and is about four miles in circuit. The walls of the houses are mostly of stakes and

wattle-work, the interstices filled up with clay; the roofs are of palm-leaves. The king's palace is here. Coomassie was captured and burned 1874 during the war with Great Britain: see ASHANTI. Pop. stated by natives, 100,000; but other reports, including observations during the war, say 20,000.

COOMB, n. *kôm* [F. *comble*, heaped measure: Dut. *kom*, a trough]: a dry measure of four bushels, used in England.

COOMB, or COMBE, n. *kôm* [W. *cwm*, a hollow between two hills: Ir. *cumar*, a valley]: in *phys. geog.*, a valley or depression, generally without a stream; a hollow on a hillside.

COOMBS, *kômz*, LESLIE: soldier, lawyer, and orator: 1793, Nov. 28—1881, Aug. 21; b. near Boonesboro, Clark co., Ky.; son of a revolutionary soldier who removed from Va. to Ky. 1782. In the war of 1812 C. was employed in important and perilous services as bearer of dispatches and as spy, and was wounded at Fort Miami. He entered the profession of law 1816, and soon became eminent. In 1836 he was made col., having raised a regt. at his own expense to aid Texas in gaining independence. He held various public offices in his state, and was a prominent and powerful speaker in aid of his old commander Gen. William H. Harrison in his campaign for the presidency. Gen. C. was always an earnest Union man; and as a whig he made many speeches in the n. and e. states 1844 in support of his friend Henry Clay for the presidency. A body of loyal Kentucky soldiers which he, with Gen. Lovell H. Rousseau, had organized, did excellent service in the war for the Union.

COOP, n. *kôp* [L. *cupa;* F. *cuve*, a tub, a cask: Icel. *kúpa*, a cup, a bowl: It. and Sp. *cuba*, a hen-coop: AS. *cofa*, a chamber]: a box barred on one side for confining fowls; a pen; an inclosed place for animals; a barrel or cask: V. to confine in a coop or in a narrow compass. COOP'ING, imp. COOPED, pp. *kôpt*. COOPER, n. *kûp'ėr*, one who makes casks or barrels. COOP'ERAGE, n. *-āj*, the workshop of a cooper; the art of a cooper; the price paid for cooper's work. COOPER'S HAMMER, a hammer with a narrow pane, whose length is in the line of the motion of the hammer; used for battering and flaring an iron hoop to fit the bulge of a cask; also called a flue-hammer. COOPER'S PLANE, a long plane set in slanting position, sole upward, upon which staves are jointed; a jointer. To COOP UP, to confine in a small or limited space, as if in a barrel.

COOPEE, n. *kô'pē* [F. *coupé*—from *couper*, to cut]: a motion in dancing.

COOPER, ANTHONY ASHLEY: see SHAFTESBURY.

COOPER, *kôp'ėr*, Sir ASTLEY: English surgeon: 1768, Aug.—1841, Feb. 12; b. Brooke, in Norfolk, where his father was a curate. In his 16th year, he went to London, and placed himself under the tuition of Mr. Cline, one of

the most noted surgeons of his day. He applied himself with ardor to his profession, and was a constant attender at the dissecting-rooms, and also at the lectures of the famous John Hunter. In 1787, Cooper was appointed demonstrator of anatomy at St. Thomas's Hospital: in 1792 prof. of anat. at Surgeons' Hall; and 1800, surgeon to Guy's Hospital. In 1813, he received the professorship of compar. anat. in the College of Surgeons. Meanwhile, Cooper had been enriching medical literature by various contributions, e.g., an essay on the effects resulting from destruction of the *membrana tympani*, which gained 1802 the Copley medal of the Royal Soc. In 1804–07 appeared his great work on *Hernia*, with illustrations mostly of life-size, a contribution of the utmost value to medical science, though not pecuniarily profitable to himself. The practical part of his profession was not neglected during this time. He was the first to attempt the tying of the carotid artery, an attempt unsuccessful in his hands, though effectual with later practitioners. His annual income which in the fifth year of his practice was only £100, had in 1813 risen to £21,000, then perhaps the largest sum ever received by a surgeon. In 1817, he tried what has been considered the boldest experiment in surgery, the tying of the aorta—unsuccessful then and since. In 1820, Cooper removed a steatomatous tumor from the head of George IV., who marked his appreciation of the operation by conferring on Cooper a baronetcy. In 1827 he was elected sergeant-surgeon to the king, and 1830 was made vice-pres. of the Royal Soc. Other honors flowed in upon him. He was made a member of the French Institute, D.C.L. of Oxford, and LL.D. of Edinburgh. Ever busy with his pen as with his knife, in 1822 he published a valuable work on *Dislocations and Fractures*. His treatise on the *Anatomy and Diseases of the Breast* (1829–40) was characterized by his usual care, research, and originality, as was his *Anatomy of the Thymus Gland*, 1832. A colossal statue to his memory is in St. Paul's Cathedral, London. As a teacher, Cooper had the faculty of communicating knowledge; and he elevated medical surgery, whose operations before his time have been described as a series of 'frightful alternatives, or hazardous compromises,' into a science.

COOPER, EDWARD: merchant and metallurgical engineer: b. New York, 1824, Oct. 26; d. 1905. After a partial course at Columbia College he and his brother-in-law Abram S. Hewitt entered the firm Cooper, Hewitt & Co. The successful Trenton Iron Works and the New Jersey Iron & Steel Works were conducted largely under his careful and scientific supervision. He was prominent in democratic politics, being one of the committee of 70 which wrought the overthrow of the Tweed ring; mayor of New York 1879–81; and a member of the Cooper Union board of trustees.

COOPER, George Henry: naval officer: 1821, July 27—1891, Nov. 17; b. Fort Diamond, New York harbor. He became a midshipman 1837, served on the frigate *Constitution* with the Pacific squadron 1838–42, and was promoted past midshipman 1843, June. He served during the Mexican war, was commissioned lieut. 1851, commander 1862. During the civil war he commanded the *Mercedita* of the S. Atlantic blockading squadron, the monitor *Sangamon*, the *Sonoma*, *Glaucus*, and other vessels. He was commissioned capt. 1867, Dec., and promoted commodore 1874, June, rear-admiral 1881, Nov. He was commandant of the Brooklyn navy yard 1880–82, and was placed on the retired list 1884.

COOPER, Henry Ernest, Hawaiian politician: b. New Albany, Ind., 1857, Aug. 28. He graduated at the Boston University law school 1878; was admitted to the Suffolk county (Mass.) bar; and settled in Honolulu 1890. During the Hawaiian revolution of January, 1893, he was chairman of the Committee of Safety, and on 1893, Jan. 17, read the proclamation abrogating monarchial government in the islands. He became a member of the advisory council in the provisional government; a circuit court judge 1893-5; minister of foreign affairs 1895-9; acting president of the republic, January to March 1898, and has served as head of the departments of justice, public instruction, and interior, and as attorney-general 1899-1900.

COOPER, Jacob, American clergyman: b. Butler county, Ohio, 1830, Dec. 7. He graduated at Yale 1852, studied theology in Edinburgh, took his ph.d. at Berlin 1854, and became a Presbyterian clergyman. He was professor of Greek in Centre College, Kentucky, 1855-66; chaplain of the 3rd (Union) Kentucky regiment 1862-3; professor of Greek in Rutgers College 1866-83, and of philosophy and logic there from 1893. His published works include: *The Eleusinian Mysteries* (1854); *Biography of George Duffield* (1889); *Biography of President T. D. Woolsey* (1899); *Biography of President William Preston Johnston* (1900); *The Passage from Mind to Matter* (1901); etc.

COOPER, James, American senator: b. Frederick county, Maryland, 1810, May 8; d. Camp Chase, Columbus, Ohio, 1863, Mar. 28. He graduated at Washington College, Pa., 1832, studied law and began practice at Gettysburg, Pa. He was elected to congress 1838 and 1840; to the state legislature 1843-8; was attorney-general of Pennsylvania 1848, and elected a United States senator 1849. When the Civil war broke out he took command of the Maryland volunteers, organized them into regiments, and on 1861, May 17, was made a brigadier-general.

COOPER, James B.: revolutionary soldier, also naval officer in the war of 1812: 1753, Mar. 6—1854, Feb. 5; b. Bucks co., Penn. In the Revolution he was a capt. in Lee's legion, and was in the battles of Stony Point, Paulus Hook, Guilford Court House, and Eutaw Springs. Entering the navy as master 1812, he was made lieut. 1822, and

commander 1841.—His son BENJAMIN C. (about 1793–1850), b. N. J., served with distinction in the same war, and was made capt. 1828.

COOPER, JAMES FENIMORE: novelist; 1789, Sep. 15–1851, Sep. 14; b. Burlington, N. J.; son of William C., who was of Eng. Quaker descent. His mother, Elizabeth Fenimore, was of Swedish descent. His original name, James C., was changed at his request by act of legislature 1826 to the name as now known. His father, shortly after the Revolution, had acquired several thousand acres of land around the head-waters of the Susquehanna, in what was then the wilderness of central N. Y.; and the year after C.'s birth William C. removed his family thither to a log house which he built on the shores of Otsego Lake. This was the beginning of the village of Cooperstown (q.v.). The log house was succeeded 1799 by a spacious manor-house, 'Otsego Hall,' which was destroyed by fire a few years after C.'s death. The vast forests through which the Indians still roamed, surrounded C.'s boyhood home. Under the English rector of St. Peter's Episcopal church in Albany, a fine scholar, but a strong disbeliever in the new American republican institutions, C. gained an admirable preparation for Yale College, which he entered 1802 at the age of 13. Though he had much kindness of heart and a singular honesty of purpose, he seems to have been naturally contentious and liable to allow his judgment to be mastered by his temper: these qualities may perhaps explain his expulsion from college in his third year for some act of insubordination. In 1806, with a view to qualifying himself for admission to the navy (the U. S. naval school had not yet been established), he shipped at New York for London and thence to Gibraltar and Philadelphia as a sailor before the mast; and about 15 months later (1808, Jan. 1) he received his commission as midshipman in the navy, and in the winter of 1808–9 he was detailed on a construction party to Oswego to build a brig on Lake Ontario. Thus, before the age of 19, C.'s naturally active imagination had felt the molding influence of the mysterious wilderness haunted by savage men, of the boisterous ocean, and of our northern inland seas overhung by wintry skies. It is not difficult to trace in his writings the broad effects of this scenery, as well as the thorough practical knowledge which he thus gained of the details of frontier and Indian and sailor life. In some of his best works (for his works are quite unequal) he not only depicts men and scenes, but he also makes his readers breathe the very atmosphere in which his characters lived: they hear the Indian's stealthy tread, or they feel the salt spray on their cheeks. Resigning from the navy he married (1811) Susan, daughter of John Peter De Lancey (q.v.). For most of the time thereafter till 1822 he resided in Scarsdale, Westchester co., not far from his wife's family. The toryism of the De Lancey family in the Revolution, added to the invincible Anglicanism in church and in state of his boyhood's tutor, the rector at Albany, seem not to have modified in the least his own pa

triotic feeling; but they undoubtedly contributed, with occasional offensive criticisms of America in his writings, and with his repeated and protracted visits in England, to make him personally unpopular with his own countrymen, who still held a perhaps natural, but certainly intemperate, hatred of all things English.

In 1820 appeared (at first anonymously) his first novel, *Precaution*, a work that gave no indication of the ability shown in some of his later books. In 1821, *The Spy*—based on a story which John Jay had told, and having for its scene C.'s own neighborhood, Westchester county, which had been debatable ground during the Revolution—startled the American public and instantly placed him in the first rank of novelists. No previous American work had been so successful. It opened to him the career in which fame awaited him. In 1823 C. was a resident of New York; and after 1834 he made his home mostly at Cooperstown, where he repaired his long deserted ancestral mansion, Otsego Hall, in which his father had died 1809.—Five daughters and two sons had been born to him. His second child, SUSAN FENIMORE C. (b. Scarsdale, N. Y., 1813), was his amanuensis in his later years; became known as an author; and in 1873 founded, and afterward managed, an admirably beneficent orphanage at Cooperstown.—C. died at Otsego Hall, having in his closing days charged his family never to permit any authorized publication of the story of his life.

The story of his life is the story of a man whose character was morally pure, whose motives were disinterested, whose heart was kindly, and whose works give brilliancy to the early literary annals of his country, but who lacked the tact, the judgment, and the temper, to make himself understood by his contemporaries—his lot being cast in a period of national youth when political criticism was in its substance largely prejudice, and in its form often virulent abuse. The story, certainly not creditable to him, is positively discreditable to his critics. A pitiful local dispute between C. and his townsmen over the right to a little land on his estate, added personal bitterness to the general popular detraction. That his spirit was unduly proud and contentious is plain; else why was he attacked with simultaneous bitterness in leading British magazines (e.g., Blackwood's and Frazer's) for his offensive republicanism; and by Webb, Greeley, and Stone in three great New York papers, and by Thurlow Weed in the Albany *Evening Journal*, for his abhorrent aristocratic and monarchical leanings? The suspicion is unavoidable that he too easily yielded himself to the luxury of being misunderstood—one of the prime luxuries of a proud spirit. The suspicion that his journalistic assailants were unfair, changes to certainty in view of the fact that C., in repeated prosecutions of them in which he acted as his own counsel before the courts, gained repeated verdicts, with the final effect of silencing their defamation—even Thurlow Weed, the last to yield, publishing 1842 an unqualified retraction of all his statements derogatory to C.'s character

It is certain that in England he always stoutly defended the institutions of his country; and it is pleasant to note that the whole long unfortunate episode is now only dimly remembered.

C.'s works include more than 70 books and pamphlets, besides numerous magazine and newspaper articles. The list is too voluminous to show an equal merit. More than 30 are novels. His 10 volumes of sketches of European society added little to his reputation. His best works are graphic in description, accurate in constructive details, vivid in dramatic action, thorough in study of character, and strong in its portrayal. Of his novels, the most notable are the famed 'Leatherstocking Tales,' here named in the order of the story, but not, as the dates show, in the order of publication: *The Deerslayer* (1841); *The Last of the Mohicans* (1826, usually deemed his greatest work); *The Pathfinder* (1840); *The Pioneers* (1823); *The Prairie* (1827). The following are some of the best of his other works: *The Spy* (1821); *The Pilot* (1823); *The Water-Witch* (1830); *Heidenmauer* (1832); *Headsman* (1833); *Wyandotte* (1843); *The Redskins* (1846); *The Red Rover* (1828); *Homeward Bound* (1838); *Home as Found* (1838—the unfortunate and offensive sequel to the preceding); *The Two Admirals* (1842); *The Wing-and-Wing* (1842); *Satanstoe* (1845). He wrote also an admirable *History of the Navy of the United States of America* (1839, abridged ed. 1841); and *Lives of Distinguished American Naval Officers* (1846).

See biography by Thomas R. Lounsbury (Boston 1882); *Bryant and His Friends* (N. Y. 1886); *The Home of Cooper*, by R. B. Coffin (1872); *Memorial Discourse*, by William C. Bryant, with addresses by Daniel Webster, etc. (New York 1852).

COOP'ER, Peter, ll.d.: 1791, Feb. 12—1883, Apr. 4; b. New York: philanthropist. In early boyhood he assisted his father in the manufacture of hats, and when 17 years old, was apprenticed to a carriage maker. He remained there till of age, made a machine for mortising hubs, and declined his employer's offer to start him in the business. Removing to Hempstead, L. I., he followed his trade some time, engaged in the manufacture of machines of his own invention for shearing cloth, and made cabinet ware; then returning to New York carried on the grocery business, and began making glue and isinglass, continuing the latter 50 years. In 1828 he purchased 3,000 acres of land in Baltimore, and two years later erected extensive iron works. He there built, 1830, from his own designs, the first locomotive engine ever constructed in the United States, which was successfully operated on the Baltimore and Ohio railroad, then in process of construction. Soon afterward, he disposed of his Baltimore works, and erected a rolling and a wire mill in New York, in which he first successfully applied anthracite coal to the puddling of iron. In 1845 he removed the machinery to Trenton, N. J., where he erected the largest rolling mill of the day in the United States, and made the first iron beams for fire-proof buildings. He also built three blast furnaces at Phillipsburg,

Penn., bought the Andover iron mine, and built an 8-m. railroad to carry the ore to the furnaces. Mr. C. was the first pres. of the New York Newfoundland and London Telegraph Company, and the successful construction and laying of the Atlantic cable was due largely to his faith in the project and his pecuniary advances when capitalists refused to risk their money. In his business relations, he was eminently successful, and acquired the means of carrying out a scheme for the establishment of an institution for the free education of the industrial classes, which had long been his supreme ambition. That he might thoroughly familiarize himself with the educational necessities of the day, particularly in technical instruction, he became a trustee of the Public School Soc., originated to promote free education in New York, and when the Board of Education was established as an outgrowth of that organization, he rendered most efficient service, as a school commissioner. Perfecting his plans for an institution to be devoted for ever to the union of art and science in their application to the useful purposes of life, he bought the property at the junction of Third and Fourth avenues, between Seventh and Eighth streets, laid the corner-stone of the building, 1854, and on its completion, 1859, executed a deed placing the property in the hands of six trustees, without reservation of any kind, upon the conditions specified in the act of the legislature authorizing the gift to be made, 'that the above mentioned and described premises, together with the appurtenances and the rents, issues, income and profits thereof, shall be forever devoted to the instruction and improvement of the inhabitants of the United States in practical science and art.' During his lifetime Mr. C. gave the trustees $200,000, as an endowment fund, and aded $100,000 more by his will, and his children, Edward C. and Mrs. Sarah A. Hewitt, gave a further sum of $100,000 to it after his death. The original cost of the building when conveyed to the trustees was $630,000; its aggregate receipts to 1888, Jan. 1 were $1,164,791 and expenditures on building and education $1,836,733. See Cooper Union. In 1876, Mr. C. was the candidate of the national independent party for pres. of the United States, and received nearly 100,000 votes in the election. He published *Ideas for a Science of Good Government, in Addresses, Letters, and Articles on a Strictly National Currency, Tariff, and Civil Service* (New York, 1883).

COOPER, Samuel, D.D.: 1725, Mar. 28—1783, Dec. 29; b Boston: clergyman. He graduated at Harvard Univ. 1743, studied theology, and succeeded his father William C. (1694–1743) as pastor of the Brattle-street Church, Boston, 1746; was elected a member of the Harvard corporation 1767, and pres. 1774, but declined the latter; was intimate with the leading patriots of the revolution, a member of several scientific and religious societies, and a founder and the first vice-pres. of the American Acad. of Arts and Sciences. He occupied the Brattle-street pulpit 37 years, and received the degree D.D. from the Univ. of Edinburg 1767.

COOPER, Thomas, LL.D.; 1759, Oct. 22—1840, May 11;

b. London; lawyer and scientist. He was educated at Oxford, studied law, medicine, and the natural sciences, was admitted to the bar, practiced some time in circuit, and was sent to France as the representative of the English democratic clubs. He there gave his sympathies to the Girondists, which led Edmund Burke to attack him in the house of commons; C. replied with a violent pamphlet, the circulation of which was in part prohibited. In 1795, he removed to Northumberland, Penn. and began practicing law; but soon afterward taking part in current political discussion, he made an attack upon pres. Adams's administration, for which he was tried for libel under the sedition act, convicted, and sentenced to six months' imprisonment and a fine of $400. Subsequently he served brief periods as land commissioner and judge, was prof. of chemistry and political ecomony in the College of S. C. 1819–40, and pres. 1820–34, and was appointed reviser of the statutes of S. C. on his retirement. He edited two vols. of *The Emporium of Arts and Sciences* (Phila. 1812–14), and Thomson's *System of Chemistry* (Phila. 1818): published a large number of political tracts, and among others, the following books: *The Bankrupt Law of America compared with that of England* (1801); *An English Version of the Institutes of Justinian* (1812); *Tracts on Medical Jurisprudence* (1819); and *Elements of Political Economy* (1826).

COOP'ERAGE: the art of making vessels of pieces of wood bound together by hoops. It is a very ancient art, such vessels having been in use among the Romans at the Christian era. The upright pieces forming the sides of a barrel or cask, or other cooper's work, are called *staves;* and as casks are usually larger in the middle than at the top and bottom, this swelling, called the *belly* or *bulge*, is formed by skilfully shaping each stave so that it shall form part of the required double conoid, and that, when all are built and hooped together, their edges shall coincide perfectly; for this purpose, each stave is made broadest in the middle, and narrowed down in a curved line towards each end. A skilful cooper can work this curve so accurately, that no further fitting or alteration shall be needed when the staves are put together. The staves are made to meet at their inner edges, and by driving the hoops very hard, the inner part is compressed until the slight gaping outside is closed, and thus slight inaccuracies of fitting are remedied.

There are several branches of cooperage. The *wet* or *tight* cooper makes vessels for holding liquids. The *dry* cooper does inferior work, such as barrels for containing dry goods, where an inferior degree of accuracy is sufficient. The *white* cooper makes churns, pails, etc., which usually have straight sides.

The best work is made of oak, which must be thoroughly dried before being put together. In warm countries, the drying of the sun is sufficient, and casks are therefore mounted in summer only. The hoops are hammered down from the narrow to the wide part of the cask, by means of a mallet striking a piece of wood held against the hoop. Iron hoops are sometimes put on hot, in order that their contraction in cooling may bind the work together.

CO-OPERATE, v. *kō-ŏp′ėr-āt* [L. *con*, and *operate*]: to act or work together for the same end; to concur in producing the same effect. CO-OP′ERA′TING, imp. CO-OP′ERA′TED, pp. CO-OP′ERANT, a. working to the same end. CO-OP′ERA′TIVE, a. *-ā′tĭv*, working jointly to the same end. CO-OP′ERA′TOR, n. one who. CO-OP′ERA′TION, n. *-ā′shŭn*, joint assistance to the same end. CO-OPERATIVE STORE, an establishment where goods are sold to subscribers or partners, but only for ready money, dividends being declared periodically.

CO-OPERATION: the association of people for the accomplishment of any desired end, especially for carrying on commercial and industrial enterprises. The advantages of C. consist in the lower prices paid for the ordinary articles of life and of manufacture, the common use of capital, machines, buildings, water power, and in common production. Instances of co-operative industry have been discovered among English miners and New England fishermen in the 17th century, and among Greek sailors of the Levant. Co-operative societies established as early as 1777-95 are still in successful operation. The earliest in England was founded in 1794 at Mongewell, in Oxfordshire, by Shute Barrington, bishop of Durham. During the Owenite agitation, between 1820 and 1845, hundreds of co-operative societies rose up, but the majority were not long-lived. The modern co-operative movement in England first took practical and permanent form with the formation of the Rochdale Society of Equitable Pioneers in 1844. The founders were 28 Lancashire weavers, nearly all Socialists of the Owen school and Chartists. The original capital was $140, slowly collected by subscription of two pence, and afterward three pence a week. With this capital they opened a store for supplying themselves with provisions; but at first they had only flour, butter, sugar, and oatmeal to sell. They limited the interest on shares to 5 per cent, and divided the profits among members in proportion to their purchases. When it was proposed to take out a license for the sale of tea and coffee the members did not pledge or subscribe amounts, but 'promised to find' small amounts ranging from two pence to one pound, and the latter sum was actually the largest offered. At the end of 13 years they had a membership of 1,850, a capital of $75,000, and their annual sales amounted to $400,000. This successful society with its organization and methods of conducting business became a model which was followed in many parts of England and abroad. In 1864 a wholesale society with annual sales amounting to over $200,000,000, with a membership of 1,512,399 and a capital of nearly $330,000,000, was established at Manchester, and in 1869 a second at Glasgow. They work in harmony and are practically one institution. The wholesale society is a federation of retail societies for the supply of goods to the various societies composing it, with purchasing and forwarding depots in England, the United States, and on the continent. It owns eight steam-

ships. It has extensive productive works, boot and shoe factories, woolen cloth works, corn mills, etc. There is also a co-operative fire and life insurance society. Since 1869 annual congresses of co-operative societies have been held throughout England. The Congress of 1902 had 1,100 delegates, with reports for 1901 from 1,604 societies, giving a membership of 1,919,555; a gain of $7,291,000 in shares, $2,574,474 in profits, and $6,614,124 in investments. Nearly $45,000,000 was distributed to members during the year as cash dividends. The most successful societies in England are those which conduct co-operative stores, rather than productive enterprises. Membership in these societies is constituted by payment of shares; the share is ordinarily 1£; in most societies the shares are not transferable, thus making dealing in the stock impossible. In some societies shareholders or members only are entitled to purchase goods at the stores; in others the privilege is extended to friends of members approved by the association. All sales are for ready money, no credit being given. In the Australian colonies C. has made a marked advance. There are many Friendly societies there. In 1873 the Co-operative Union was consolidated, with a regular constitution. It is governed by a board of 12 members, representing the six sections into which the union is divided. There were 48 additional societies not reporting. The movement for co-operation in Ireland has lately shown a decided progress. There are in the island 232 co-operative dairy or creamery societies, 101 agricultural societies, 52 co-operative banks, and 39 other organizations; total membership 40,000.

In France C. began with the Revolution, and that nation is one of the few in which the State has aided enterprises of this kind; building contracts have been awarded to co-operative industries by the government. C. in different modes of agriculture has had some success in France; there are also about 1,500 co-operative stores, and 250 co-operative workshops. Paris has a large and successful co-operative society. In Germany and Italy the co-operative idea has led to the formation of many people's banks, furnishing mutual credit to workmen and small tradesmen; these banks were first established by Schultre-Delitzch about 1851. There are also in Germany 1,527 co-operative societies engaged in distribution, and 255 in various productive industries. The co-operative societies of Belgium are of importance, and unique in their organization on account of their close relation to the Socialist and trades-union organizations. Only those are admitted to the Belgian societies who accept the general principles of the Socialist Party; and a certain amount of the profits are devoted to the Socialist propaganda. In the cities these co-operative societies conduct large stores, as well as bakeries, and other productive enterprises, and their central buildings are made the headquarters of the Socialist Party and of all labor organizations. In Holland the same is true to a certain extent; and in Switzerland,

where the co-operative movement has had unusual success, especially in co-operative dairies, a similar tendency is manifest. In 1907 the largest co-operative society in Switzerland placed its management in the hands of Socialists with the direction that its affairs should be conducted 'in the interests of the Socialist Party.'

In the U. S., C. has made comparatively slow progress. One of the forms of C. which has proved most successful in the U. S. is the Building and Loan Associations (q. v.). Between 1840–50, the New England Protective Union adopting the scheme of the Rochdale (Eng.) enterprise built up a system of stores which for a time were very successful. None of these survive under the orginal organization, but a few exist in modified form, among which are the Protective Union of Worchester, Mass., and the Central Union Association of New Bedford, Mass. In the next decade co-operative dairies were started in several parts of N. Y. Then came the orders of Patrons of Husbandry and Sovereigns of Industry, which spread rapidly through the northern, eastern, and western states, establishing a number of co-operative stores, which at one time did an annual business of more than $5,000,000. A large co-operative dry-goods and millinery store was established in N. Y. under the management of Kate Field and several large grocery and provision stores in New York, Brooklyn, Boston, Philadelphia, and other places. With few exceptions, however, the store feature proved unsuccessful and was almost entirely abandoned. The depression of trade following the panic of 1873 led to the opening of many factories on the co-operative plan by workmen thrown out of employment, particularly in the large industrial cities; but such enterprises were not successful owing to the disturbed industrial conditions, lack of capital, and of business experience on the part of the projectors. Probably the most successful form of co-operative industry in the U. S. is the co-operative creameries, which have had phenomenal success in the northwestern States especially. Minnesota leads in the number and value of such creameries, though New England—particularly Mass.—has many of them. In 1901 more than 50 Farmers' Co-operative Grain associations were formed in Kansas; and in the same year the Co-operative Association of America was organized at Lewiston, Me., with the purpose of developing a federation of various lines of business, beginning with a grocery. The profits are divided semi-annually among the co-operators. There are also many co-operative communities in the U. S., varying much in their methods and characteristics; they may be classified as communistic, socialistic, and partially co-operative; of the last mentioned type, the colony at Anaheim, Cal. is one of the most successful.

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COOPER CREEK, or Barcoo, the largest inland river in Australia. It rises in Queensland at about lat. 25° S., and flows at first southwest and then in a westerly direction, into Lake Eyre.

COOPER RIVER: stream of S. C., rising in the central part of Charleston co., and flowing s.e. to the city of Charleston, where it unites with the Ashley river in forming the harbor. It is navigable 30 m. to the Santee canal, which is 21 m. long and connects it with the river of that name.

COOPERSTOWN, *kôp'ėrz-town,* New York: village and county-seat of Otsego co., at the outlet of Otsego Lake, and on the Cooperstown and Charlotte Valley railroad, 90 m. w. of Albany. Among its principal buildings are Thanksgiving Hospital, a Union free school, knitting mills, a box factory, cheese factory, and a national bank. It was formerly the site of an old Indian town, but was purchased by George Croghan previous to 1769, and in 1785 it passed to the ownership of William Cooper, from whom it derived its present name. It is a noted summer resort, and enjoys some distinction from the fact that James Fenimore Cooper, the novelist, lived there for some years. Pop. 2,415.

COOPER UNION for the Advancement of Science and Art: institution in New York founded by Peter Cooper (q.v.) in 1859, at the junction of Third and Fourth avenues, between Seventh and Eighth streets. He purchased the ground, erected the building, and executed a deed in fee simple of the whole property, which had cost $630,000, to six trustees, 1859, Apr. 29. In a letter accompanying the trust-deed, the founder said: 'My heart's desire is, that the rising generation may become so thoroughly acquainted with the works of nature, and the great mystery of their own being, that they may see, feel, understand, and know that there are immutable laws, designed in infinite wisdom, constantly operating for our good—so governing the destiny of worlds and men that it is our highest wisdom to live in strict conformity to these laws.' Guided by these principles, the trustees of the institution agreed on the following scheme as best calculated to instruct, elevate, and improve the working classes of the city: (1) Instruction in the branches of knowledge which are practically applied in their daily occupa-

tions, by which they support themselves and their families; (2) instruction in the laws by which health is preserved, and the sanitary condition of families improved; (3) instruction in social and political science, by virtue of which communities maintain themselves and nations advance in virtue, wealth, and power; (4) instruction addressed to the eye, the ear, and the imagination, with a view to furnish a reasonable and healthy recreation to the working-classes after the labors of the day. As this scheme included both sexes, it was decided to extend all the privileges of the institution to men and women alike. An endowment fund was created by the gift of $100,000 during Mr. Cooper's lifetime and another $100,000 was added by his will. The William Cooper memorial foundation was $340,000. The fund has received additional gifts from time to time from Edward Cooper and Abram S. Hewitt, and in 1899 Andrew Carnegie gave $300,000 and later $300,000 more. The increase of annual revenue amounting to $25,000 provided by the three donors last mentioned was intended for the purpose of establishing a day school and of enlarging the operations of the night classes by the addition of special instruction in chemical, electrical, and thermodynamic knowledge. The expenditure made necessary by preparation for enlarging the work of the institute amounted to about $22,000 additional, which was contributed chiefly by Mr. Cooper and Mr. Hewitt. The courses in science include engineering, electricity, chemistry, physics, astronomy, and mechanical drawing; and those of art include architectural, industrial, and ornamental and free-hand drawing, clay modeling, and painting. Instruction is given in music, English literature, wood engraving, and pottery. The institute confers degrees in science and in civil, mechanical, and electrical engineering. There are several scholarships. Additional advantages are offered by lecture courses, a museum, an art gallery and a library of 39,481 volumes, with a reading room containing current numbers of nearly 500 magazines and newspapers. The institute is divided into the following departments: Night School of Science, Day School of Science, Naval Architecture Class, Night Art Department, Woman's Art School, Stenography and Typewriting School, Telegraphy School, Elocution Class, Oratory and Debate Class. The total number of students in the several departments in 1902 was 3,406. The People's Institute, although holding their meetings in the Cooper Union Building, are not branches of the Cooper Institute.

CO-ORDINATE, a. *kō-ŏr'dĭ-nāt* [L. *con*, and *ordĭnātus*, put in order, arranged]: of equal order; of the same rank or degree. CO-OR'DINATELY, ad. *-lĭ*. CO-OR'DINATENESS, n. equality of rank or authority. CO-OR'DINA'TION, n. *-nā'-shŭn*, the state of holding equal rank or authority. CO-OR'DINATES, n. plu. *-nātz*, in *geom.* See GEOMETRY.

COÖRDINATION, in psychology: practically all the useful movements of the body are accomplished through the simultaneous and successive contractions of a considerable number of muscles and the process of timing the contractions of muscles so as to perform serviceable movements is termed coordination. Coordinated movements stand opposed to random and spasmodic actions. The difference between a perfect and an imperfect act, between a skillful and an awkward movement is one of coordination. All the instinctive movements of animals and men are coordinated movements. Some of the instincts are properly coordinated at birth and so work with essential smoothness upon the first appearance of their appropriate stimuli, others require to be repeated numberless times before they are fully perfected, and others—these are the social instincts for the most part—are brought out only through suggestion, imitation and direct educational work. Under the first class might be mentioned the running movements of quails, the striking of serpents and perhaps the sucking movements of the human infant; under the second division come pecking of chickens, pointing in dogs, and walking and talking in children; and under the latter division reading, writing and aesthetic activity may be mentioned. The facility with which different species of animals learn or perfect coordination varies greatly and the grace and skill with which the adults execute the movements when they seem to be fully acquired is strikingly different. In respect to the latter compare the deer and antelope in walking and running with the dromedary, elephant and sacred cow. The differences among individuals with respect to grace and bearing are almost entirely those of the perfection of the acquired coordinations. Skill means that a movement is executed with the participation of only those muscles that are necessary in the proper amounts and in the temporal sequence to do work with no loss of energy through accessory and superfluous action. Grace and bearing are social assets of tremendous value in all occupations and people are successful almost in proportion as they attain to them. See WILL.

COORG, *kôrg:* province under the government of India, bounded by Mysore, Malabar, and Canara; in lat. 11° 56′—12° 45′ n. long. 75° 25′—76° 13′ e.; about 1,600 sq. m. Until 1834, it was a native principality of ampler dimensions. As now defined, Coorg appears to be wholly within the basin of the Cauvery, one of the chief tributaries of the Bay of Bengal. The yearly fall of rain amounts to about 120 inches; the temperature is comparatively low and equable. Nearly the whole of this rugged region is covered with forests. The zoology of Coorg comprises elephants, tigers, bears, etc., with birds and reptiles in vast variety. Pop. 180,607.

COOSA RIVER, *kô′sa:* stream formed at Rome, Ga., by

the junction of the Etowah and Oostenaula rivers, flowing w.s.w. to Ten Islands; Cherokee co., Ala., then s.s.w. forming the e. boundary of Shelby and Chilton cos. and the w. of Coosa co., to the Tallapoosa river in Elmore co., where abt. 10 m. n.n.e. of Montgomery the two streams form the Alabama river. The C. is abt. 350 m. long; the upper portion is navigable between Rome and the Ten Islands, but the channel of the lower portion is so shoaly that only flat boats can navigate it.

COOS BAY, *kôs:* seaport of Oregon, in Coos co. where the Coos river empties into the Pacific Ocean The entrance is n. of Cape Arago, lat. 43° 20′ 38″ n., long. 124° 22′ w., and has a bar impassable for vessels drawing over 14 ft. of water. Beyond its banks are valuable tracts of heavy timber and rich mines of lignite coal; the exportation of the latter is the principal industry.

COOSY, *kô′sĭ*—not to be confounded with the much smaller Coosy which enters the Hoogly from the right below Calcutta: one of the largest rivers of India. It rises in lat. 28° 25′ n., and long. 86° 11′ e., on the s. slope of the Himalayas, receiving, however, at least one affluent from the n. face of that range. On emerging from the mountains, in lat. 26° 45′, and long. 87° 13′, it shows a greater volume than does the Ganges itself, in the corresponding position of Hurdwar. After a course of 325 m. in all, through the state of Nepaul and the district of Purneah, it joins the Ganges from the left, in lat. 25° 19′, and long. 87° 19′.

COOT, n. *kôt,* [Dut. *koet,* a small black duck: W. *cwt;* Gael, *cut,* a short tail], (*Fulica*): genus of birds of the order *Grallæ,* ranked either in the family *Rallidæ* (rails, crakes, etc), or in a separate family, *Lobipedidæ,* which differs chiefly in having the toes edged with a scalloped membrane, thus making an approach to the web-footed birds. Coots have a strong, straight, and somewhat conical bill, the base of which extends up the forehead, and there dilates so as to form a remarkable naked patch. The tail is very short. They are aquatic in their habits, preferring lakes or pools with reedy margins, and retreating among the reeds on any alarm. The Common Coot (*Fulica atra*) is found in most parts of Europe, Asia, and n. Africa; occurring in the more northerly regions as a summer bird of passage; although in southerly parts of Britain it is plentiful during winter. It is about 16 inches long, of a black color, with a narrow white bar across the wings, and the naked patch on the forehead pure white, from which it is often called the Bald Coot. It makes a large nest of water-plants among reeds or rushes. Although not very highly esteemed for the table, the fact that many can be killed by a single shot, on the mud-banks to which coots resort in winter, makes coot shooting profitable to fowlers who purvey for the market.—The American coot (*F. Americana*), a very similar species, is found in all parts of N. America, from the W. Indies to the Saskatchewan.

COP, n. *kŏp* [W. *cop*, the top of anything; *coppog*, crested: Dut. *kop*, the head: W. *cob*, a thump, that which produces a top or tuft]: in *OE.*, the top of anything; the crown of the head. COPPED, a. *kŏpt*, in *OE.*, rising to a top or head.

COP, n. *kŏp*, or COP'PIN [AS. *copp;* O.H.G. *choph*]: a conical ball of thread wound upon a spindle or tube in a spinning-machine, and removable by slipping therefrom.

COPAIBA, n. *kō-pā'bă*, or COPAI'VA, n. *-vă* [Sp. and Port.]: balsam, valuable in medicine, consisting chiefly of a resin (*Resin of Copaiba*) and a volatile oil (*Oil of Copaiba*). It flows from incisions made in the stems of trees of the genus *Copaifera*, trees with pinnate leaves, of the nat. ord. *Leguminosæ*, sub-order *Cæsalpinieæ*, natives of tropical America. It has a peculiar, not disagreeable order, and an acrid taste. It has stimulant properties, is diuretic when taken in small doses, aperient in larger doses; but is principally useful from its powerful action on the mucous membranes. It is much used in affections of the urino-genital system, and is used also in chronic catarrhs, etc. Balsam of copaiba is frequently adulterated with castor oil. The Wood Oil (q.v.) or Gurgina Balsam of India, the produce of a species of *Dipterocarpus*, is sometimes sold as Balsam of Copaiba. COPAI'VIC, a. *-vĭk*, denoting an acid obtained from copaiba balsam.

CO'PAIS, LAKE: see BŒOTIA.

COPAL, n. *kō'păl* or *kō-păl'* [Mexican, *copalli*, a general name for resins]: resinous substance used for a variety of purposes in the arts. It appears in commerce in smooth rounded masses, colorless or lemon-yellow, translucent or transparent, rather brittle, and when cold almost without smell or taste. It is readily fusible and inflammable, is insoluble in water, and only partially soluble in alcohol and oil of turpentine, but becomes entirely soluble in them when it has been for a short time melted. Various useful pale-yellow or almost colorless varnishes and lackers are made of melted copal and alcohol, oil of turpentine, or boiled linseed oil.

Copal is said to be from a general Mexican name for resins or gums, and the copal of commerce was perhaps originally brought from Mexico. Copal is obtained also in Africa, Brazil, Madagascar, and India. Mexican copal is now believed to be the produce of a species of *Hymenæa*, a tree of the nat. ord. *Leguminosæ*, sub-order *Cæsalpinieæ*. *Vateria Indica*, a large tree of the nat. ord. *Dipteraceæ*, yields the copal of India, very nearly resembling true copal in its properties, sometimes called Gum Animé (q.v.) in British commerce. COPALINE, n. *kŏp'ă-lĭn*, in *geol.*, mineral substance resembling copal, thence called *fossil copal*, found in some tertiary clays, as at Highgate near London, whence it is called *Highgate Resin*.

COPALCHE BARK, *kō-păl'cha:* bark resembling Cascarilla (q.v.) Bark in its properties, and produced by shrubs of the same genus. *Croton pseudo-china* and *C.*

suberosum (see CROTON), natives of Mexico. The former yields a variety in small quills; that produced by the latter is in larger quills, and has a corky epidermis. Copalche bark is much used as a substitute for *Cinchona* in the cure of intermittents in Mexico, and is exported, though not largely.

COPALM: see LIQUIDAMBAR.

COPARCENARY, n. *kō-pâr'sĕn-ėr-ĭ* [L. *con*, together; *partĭceps*, a partaker, a sharer]: joint share in an inheritance. COPAR'CENER, n. *-ėr*, a joint sharer in an inheritance —Although such an estate remains unsevered, yet each parcenar is entitled to a distinct share of it; consequently there is no benefit of survivorship, but the right of each descends to his or her heirs, who are still called coparcenars with the surviving original parcenars. The rule of descent is also *per stirpes*, so that the heirs of one who has predeceased the common ancestor take only the share which would have come to their immediate ancestor had he or she survived. If one of the coparcenars alienates his share, the coparcenary is destroyed, and the estate becomes a tenancy in common (q.v.). Coparcenary may also be destroyed by partition, when the estates become in severalty (q.v.). This may be effected either by voluntary agreement, or by a suit in chancery. An Advowson (q.v.) is exercised in turns, according to seniority. If the estates in coparcenary are by descent reunited in one person, they become again an estate in severalty.

COPARTNER, n. *kō-pârt'nėr* [L. *con*, together; *partem*, a part]: one who is jointly concerned with one or more persons in carrying on a business; a sharer; a partaker. COPART'NERSHIP, n., or COPART'NERY, n. *-nėr-ĭ*, joint concern in a business; the persons who have a joint interest in a business: see PARTNERSHIP.

COPE, n. *kōp* [Dut. *kap*, a cap, or hood, summit of a building: Sp. *copa*, crown of a hat: It. *copi*, tiles; *cappa*, a cloak with a hood]: a cover for the head; anything spread over the head; the top or covering course of a wall; a sacerdotal vestment or garment worn in sacred ministrations: V. to cover with a cope. CO'PING, imp.: N. the top or sloping part of a wall. COPED, pp. *kōpt*. COPE'STONE, n. head or top stone.

COPE, v. *kōp* [Icel. *kapp*, contention]: to contend with on equal terms; to match; to oppose with success; to strive or struggle with. CO'PING, imp. COPED, pp. *kōpt*.

COPE: custom or tribute due to the crown, or lord of the soil out of the lead-mines in Derbyshire, England.

COPE: ecclesiastical vestment, worn during the celebration of mass, at processions, vespers, and other solemnities. The cope was originally a cloak worn for ordinary purposes. In form it is a semi-circle, without sleeves and with a hood. It is fastened across the breast with a clasp or morse. Copes early began to be ornamented with embroidery, and even with jewels; and so early as the 13th

c. they became the most magnificent and costly of all the vestments of the priesthood.

Cope.

COPE, *kōp*, EDWARD DRINKER: paleontologist and author: b. Philadelphia, 1840, July 28. His father and grandfather were prominent merchants in that city. After graduation at the Univ. of Pennsylvania, he was in the dept. of comparative anat. in the Philadelphia Acad. of Sciences and in the Smithsonian Institution; was in Europe 1863–4; prof. of nat. sciences in Haverford College 1864–67. He was paleontologist of the first survey of the U. S. territories, and of the survey w. of the 100th meridian, and collected at a personal expense of $75,000 an immense amount of material, including 600 new species, especially many of the wonderful vertebrata of the cretaceous and tertiary beds. He was recognized abroad as one of the foremost in his specialty; received 1879 the Bigsby gold medal of the Geol. Soc. (London); and published hundreds of scientific monographs and many elaborate treatises, among these being *The Origin of the Fittest* (1886). D. 1897,

COPECK, or COPEK, or COPEC, n. *kō-pĕk:* Russian copper coin, the oldest kind in Russia, and the first substitute for furs as a medium of exchange. The name is derived from the Russian word for a lance, St. George and his lance having anciently figured on the coin. Copecks were originally coined of silver alone, but copper copecks were afterward introduced. The present C. is the hundredth part of a silver ruble (which is worth 55.3 cents), or abt. .55 of a cent.

COPENHAGEN, *kō-pĕn-hā'gĕn* (Dan. *Kjöbenhavn*, 'Merchants' Haven'): capital of Denmark; on the island of Sjælland, in the Sound which is here about 15 m. broad; and the city includes the island of Amager or Amak, separated from Sjælland by a narrow arm of the sea, forming a fine and capacious harbor; lat. 55° 41′ n., long. 12° 35′ e. C. lies very low, and was strongly fortified until 1864, when the land works were destroyed, though the citadel of Frederickshavn, and some of the batteries on the sea, were left in a condition to admit of being defended in case of emergency. The old ramparts of the city and citadel, which are planted with trees, afford pleasant walks. The population of C. was, in 1901, 378,235. Copenhagen proper, in Sjælland, and Christianshavn on Amager, which form the main divisions of the city, are united by the bridges Langebro and Knippelsbro. The business quarter of C. stretches from its noble harbor in a n.e. direction toward the principal and central square, Kongens Nytorv, which in itself forms the focus of the life of the city.

Further n. and e. of this point lies the aristocratic quarter, with the handsome Amalienborg Square of royal and administerial palaces: and this district is bounded in the extreme n. by the citadel, and the adjoining public gardens and walks on the shores of the Sound. C. has suffered so severely during the last hundred years from fires and bombardments, that the city contains comparatively few remains of antiquity. Among its few buildings of historical interest or intrinsic beauty, are the metropolitan cathedral-church, known as Vor Fruekirke, rebuilt after the bombardment of 1807, and distinguished now for possessing statues of Christ and the Apostles, together with a kneeling angel bearing a baptismal shell-font, which were designed, and in part executed, by Thorwaldsen; Trinitatiskirke, remarkable only for its round tower, ascended by a winding causeway instead of steps; and Holmens' Kirke, containing interesting monuments to the great naval heroes, Juel and Tordenskjöld. The royal palace, called Christiansborg, is one of the most extensive in Europe, though its architectural character is not high. It contains, however, a picture gallery, and some noble works of art by Thorwaldsen and others. The castle of Rosenborg, where the regalia are kept, contains interesting collections of objects of art; and the palace of Charlottenborg is now used as an acad. of arts. The university was founded by Christian I. 1479, but the constitution under which it at present exists bears date 1788. The number of professors is about 40, students 1,200. Connected with the university are a surgical academy, two observatories, a botanical garden, a polytechnic institution, and a library of 250,000 vols., containing also a great collection of ancient Persian MSS., and another of ancient northern MSS. C. is the centre, not only of Danish, but of northern literature and art, and is the seat of a number of societies for the advancement of these in all their branches, among which the most important are the Literary and Scientific Assoc., founded 1742; the Acad. of Arts; and the Royal Soc. for Northern Antiquities, founded 1825. The royal library contains 500,000 vols., besides great treasures of Sanskrit and other MSS. The Museum of Northern Antiquities in Christiansborg is unrivalled in its kind, and contains an admirably arranged collection of *stone* weapons, ornaments, etc., to B.C. 500, bronzes to A.D. 500, and articles wrought in iron, silver, and gold to A.D. 1000, besides numerous specimens to illustrate arts and manufactures in Scandinavia during the Christian ages. The Thorwaldsen Museum, opened 1846, comprises works of art by that sculptor, and others left by him to the Danish nation, for which a separate building has been erected. C. contains a number of well-supported benevolent institutions. Since the war of 1864, C. has rapidly recovered its commercial activity, and now its trade is steadily increasing; between 8,000 and 9,000 vessels annually enter its port. The chief exports are grain, rape-seed, butter, cheese, beef, cattle, wool, and hides. Excellent watches are made at C.; its royal porcelain works have long enjoyed a European reputation; but besides these

and a few manufactories for gloves, glass, etc., C. has no branches of industry worthy of any special notice in this article.

About the middle of the 12th c., C. was an insignificant fishing-village, in the neighborhood of which Bishop Axel, or Absalon (q.v.), built a castle. He bequeathed the castle, village, and neighboring district to the bishopric of Roeskilde. In 1254, the village obtained the privileges of a town, and in 1443 King Christopher made it the cap. of the kingdom. It was several times attacked by the Hanseatic League; was besieged and bombarded by the Swedes in the 17th c.; suffered grievously by fires in 1728, 94, and 95; witnessed a great sea fight in its roads 1801, Apr. 2, when the English, under Sir Hyde Parker, with Nelson as his second in command, were victorious over the Danish fleet; and was bombarded by the English 1807, Sep. 2—5, when great destruction was wrought, both in houses and public buildings, and about 2,000 persons lost their lives.

COPEPODA, n. *kōp-ĕp'ŏ-dă* [Gr. *kōpē*, an oar; *podēs*, feet]: oar-footed animals, an order of crustacea.

COPER: see under Cope 3.

COPERNICAN, a. *kō-pĕr'nĭ-kăn:* pertaining to the system of *Copernicus*, celebrated Prussian astronomer, who taught that the earth revolves round the sun (died 1543).

The Copernican System is that which represents the sun to be at rest in the centre, and the earth and planets to move round it in ellipses; in other words, it is that which we now know, on unquestionable evidence, to be the true system of the world. It got its name from Copernicus (q.v.), but, in fact, it may be described as being a growth to which he was only one of many contributors. The merit of having first formed the general notion of the system seems to be due to Pythagoras; Copernicus has the credit of having, after the lapse of centuries, again drawn the attention of philosophers to it, and of having greatly increased the probability of its truth by his calculations and arguments; for the rest, the glory of having matured its idea belongs to Kepler, Galileo, and others, and to Newton, who, through the discovery of the law of gravitation, demonstrated its truth effectually. Many who have been used to reverence the name of Copernicus in connection with this system, would be surpised to find, on perusing his work *De Revolutionibus Orbium*, how much of error, unsound reasoning, and happy conjecture combined to secure for him in all times the association of the system with his name.

De Revolutionibus Orbium, dedicated to Pope Paul III., consists of six books, in which Copernicus undertook to demonstrate his whole system. The character of reasoning which then passed for demonstration, must be borne in mind in judging of the author's procedure in establishing his various positions. It was then thought a sufficient demonstration of a phenomenon to make a supposition, on which its occurrence would be intelligible, without attempt-

ing to bring the supposition itself, by an induction of facts, within the truth of nature; many abstract propositions, too, which would now appear silly, were at that time universally admitted to be of great weight in scientific arguments.

Illustrations of both these peculiarities may be gleaned from the first of the six books of *De Revolutionibus*. It containes the following propositions : 1. That the universe is spherical. This is established by such arguments, as that the sphere is the most perfect figure, etc. 2. That the earth is spherical, which flows from the same kind of considerations. 3. That the earth and sea make one globe. 4. That the motions of all the heavenly bodies must be uniform and circular, or compounded of uniform and circular motions. Here, again, we meet with singular reasons. A *simple* body must move circularly, and nothing but circular motion could give periodicity to phenomena. 5. That, supposing the distance of the stars to be immense, there is no reason why the earth should not have a motion round its axis as well as a motion in its orbit. 6. That the sphere of the stars is immensely distant. The proof is fanciful, and shows that Copernicus had no notion of a universe of stars pervading space. 7 and 8. The ancients were wrong in placing the earth at the centre of the universe. The arguments under this head are as imaginative as those which they were designed to refute. The falling of a body to the earth he deduces from the assumption, that it is only given to wholes to move circularly, while it is of the nature of parts separated from their wholes, to move in right lines. That there must be a *centrum mundi*, an entity unknown to modern science, is admitted, the question being as to its position. 9. It is possible for the earth to have several motions. 10. He establishes the order of the planets, and draws a diagram of the system much as it is now represented. Following the old systems, such as the Ptolemaic, he lays down *a sphere* for the fixed stars. (See FIRMAMENT.) It is clear, also, that he had no idea of the motions of the planets other than that they were such as would be caused by their being fixed in immense crystal spheres revolving round the sun.

The sum of Copernicus's astronomical achievements is, mainly, the shifting of the centre of the solar system from the earth to the sun, and the consequent explanation of the alternation of day and night by the earth's rotation on its axis, and of the vicissitude of the seasons by the earth's revolution round the sun. This complete transformation in astronomy was due, in the first instance, to the sense of order in Copernicus's own mind, which, ever more clearly, protested against the inverse conception of a much smaller body at the centre, and a far greater at the circumference, and all the repugnant notions regarding the movements of the planets which such a conception involved. Experimental proofs of the earth's rotation, or the conditions for the realization of the fact, such as we now have in overwhelming abundance, there were then none; but discriminating motion as an attribute of matter, and space as the scene but

not the subject of motion. Copernicus explained how the celestial sphere was but a limitation of space, and its movement only apparent; and how the 'backward loopings' of the paths pursued by the planets were only the perspective result of their real movements in conjunction with the real movements of the earth. Such was the comprehensive scheme of astronomy conceived by him; but it was impossible for him, with the instruments and ascertained facts then at his disposal, to master the details. Instead of grasping the idea of elliptic orbits, he still abode by that of uniform circular motion, and had therefore to retain the 'epicycles' to account for 'irregularities,' though he reduced this apparatus of checks and balances to the number of thirty-four. It was reserved for Kepler to dispense with the epicycles. See PTOLEMAIC SYSTEM: ASTRONOMY: KEPLER. Rom. Cath. churchmen received Copernicus's work with much favor; the only theological objections came from the Protestants. Luther denounced him as an arrogant fool who wrote in defiance of Scripture, and Melanchthon urged the suppression of such mischievous doctrines by the secular power. The conduct of the *De Revolutionibus* through the press having been delegated by Copernicus's friend, George Joachim von Lauchen (Rheticus) to Osiander (q.v.), the latter, by way of conciliating existing prejudices, foisted on the work a preface (*Praefatiuncula*) quite foreign from Copernicus's intentions, in which the doctrine of the earth's rotation is represented as a mere hypothesis. Till very recently, this preface has generally been regarded as from Copernicus himself.

COPERNICIA: see CARNAHUBA PALM.

COPERNICUS, *ko-pĕr'nĭ-kŭs*, NICOLAS: founder of the modern astronomy: 1473, Feb. 19—1543, May 24; b. Thorn, W. Prussia, lately belonging to the order of the Teutonic Knights (q.v.), but now a part of Poland. His father, a Polish subject, was apparently a Germanized Slav, and his mother of pure German extraction. C. seems to have spoken German as his mother-tongue; but Poland and Germany still dispute with each other the honor of producing him. Brought up under the guardianship of his uncle Lucas, prince-bishop of the great Prussian diocese of Ermland, he matriculated at Cracow 1401, and there studied mathematics, optics, and perspective. Leaving without taking a degree, he enrolled himself 1496 in the 'Natio Germanorum' of Bologna Univ. as a student of canon law, and was next year appointed canon of Frauenburg, the cathedral city of the diocese of Ermland, on the shores of the Frisches Haff. The year 1500 he spent at Rome, where he lectured on astronomy, and (Nov. 6) 'observed an eclipse of the moon.' The following year he began the study of medicine at Padua, medicine in that age being essentially dependent on astronomy, and was at Ferrara, 1503, invested with the doctorship of canon law. In 1505, he left Italy never to return to it, and settled in his native Prussia. Though 'Scholasticus' of Breslau till 1538, and canon of Frauenburg, C. never became a priest.

COPERNICUS.

Appointed permanent medical attendant on his uncle, he lived with him, 1507–12, in the princely castle of Heilsberg, 46 m. from the town of Frauenburg, where, besides thinking out his new astronomy, he had toilsome administrative and other duties to perform, involving him in frequent journeys. After his uncle's death, 1512, he lived at Frauenburg with an income as canon calculated at about $2,250 of present money, not merely to study the stars in his tower *Curia Copernicana*, but to execute difficult and multifarious offices as bailiff, military gov., judge, tax-collector, vicar-gen., and physician. These offices he fulfilled with vigor and success, even while his difficulties were increased by the intrigues and wars which ultimately led to the restoration of West Prussia to the Teutonic Knights, and its incorporation with the Prot. state of Brandenburg. The coinage having been grossly debased by the Teutonic Knights and the three leading commercial towns of Prussia, C. set himself strenuously to the task of its reform, and advocated the establishment of a single mint for the whole of Prussia. In 1523, he was appointed administrator-gen. of the diocese.

The *De Revolutionibus* he completed 1530, but could not be prevailed on to give it to the press till close on the end of his life. In 1542, he was seized with apoplexy, accompanied by paralysis on the right side. 1543, May 24, the first printed copy of the work arrived at Frauenburg, and was touched by his dying hands only a few hours before he expired. His memory gone, and his faculties all obscured, it could only be said that he seemed to know what it was that he touched.

Besides the *De Revolutionibus*, C. wrote and published at Cracow a Latin translation of the Epistles of the Byzantine author Theophylactus Simocatta, and a treatise on trigonometry. His life was written by Gassendi, and more recently by Von Hipler (1873); and Polkovski (Warsaw 1873). By far the most complete account of C.'s life and labors is, however, the great work by Dr. Prowe, the first vol. of which was published at Berlin 1883. C.'s family name of *Koppernigk* is derived from a village so called in Silesia, and was Latinized by C. as *Coppernicus*, and by him generally so spelt.

COPESMATE, n. *kōps'māt* [*cope*, to buy and sell, and *mate* (see COPE 3)]: in *OE.*, an associate or partner in trading; a mute; an associate.

COPHINUS, n. *kŏf'ĭ-nŭs* [Gr. *kophĭnos*, a basket]: in *geol.*, a term applied to certain curious organic markings.

COPIAPO, *kō-pe-â-pō':* volcano, peak of the Andes, in the n. of Chili, on the e. frontier of the dept. of C., lat. 27° 32′ south.

COPIAPO′: river in the n. of Chili, flowing w. from the Andes 120 m. to the Pacific; its mouth is in lat. 27° 20′ s., long. 71° 2′ west. It is nearly dried up ere it reachest he sea.

COPIAPO′: town of Chili, cap. of the dept. of C., a division of the n. province of Atacama. C. stands on the

river Copiapo, 30 m. from its mouth, in the centre of a rich mining district. The town, regularly laid out, is connected by railway with its port of Caldera, about 20 m. n. of the mouth of the river. The Copiapo railway, 120 m. long, is largely of Brit. ownership. Earthquakes are frequent, and the houses are slightly built. Pop. 9,916.

The dept. of COPIAPO is rich in silver and copper, but, except on the banks of streams, almost valueless for agriculture. Exports from this region are copper, silver, cobalt, ore, and hides. Imports, almost wholly from Great Britain, are coal, iron, bricks, machinery, etc. There is some trade across the Cordillera with the Argentine provinces.

COPIED, COPIER: see under COPY.

COPIOUS, a. *kō′pĭ-ŭs* [L. *copĭōsus*, having abundance —from *copĭa*, plenty: It. *copioso:* F. *copieux:* comp. Gael. *cob*, plenty, abundance]: abundant; plentiful; in great quantities; not barren; full in matter. CO′PI-OUSLY, ad. *-lĭ*. CO′PIOUSNESS, n. abundance; full supply; great plenty.—SYN. of 'copious': ample; abundant; plenteous; exuberant; rich; full; overflowing; diffuse; discursive; prolix.

COPPER, n. *kŏp′pėr* [L. *cuprum*, copper—from *Cyprus*, where found in abundance: Ger. *kupfer*]: an elementary body, being a brownish-red metal; any vessel made of it; a large boiler; a coin of copper: V. to cover or sheathe with sheets of copper; in gambling, to reverse a bet. COP′PERING, imp. COPPERED, pp. *kŏp′pėrd*. COP′PERISH, a. or COPPERY, a. *kŏp′pėr-i*, containing copper; tasting or smelling like copper. COPPER-BOTTOMED, sheathed with copper, as a ship. COPPER BUTTERFLIES, n. plu.: Eng. name of the small butterflies belonging to the family *Lycænidæ*, and specially to its typical genus *Lycæna*. COPPER-FASTENED, fastened with copper bolts. COPPER GLANCE, a valuable but scarce ore of copper, consisting of sulphide of copper. COPPERHEAD, a venomous American snake, which gives no warning of its attack; a name given to those in the Northern states during the war of secession, 1861–65, who openly favored the South. COPPER-NICKEL, an ore of nickel of a color like copper, found in Westphalia, used in the manufacture of German silver; arsenide of nickel. COPPER-NOSE, *-nōz* [F. *couperose*, an extreme redness of the face, with many pimples about the nose]: a red nose. COPPER-WORM [Eng. *copper*, and *worm*]: a mollusk *Teredo navalis;* a moth that frets garments; a worm breeding in one's hand. COPPER-PLATE, a plate of polished copper on which copies from paintings, figures, or designs are engraved; fine clear writing like engraving: see ENGRAVING. COPPER-PYRITES, an ore of copper and sulphur of a brass-yellow color; a mixture of the sulphides of iron and copper.

COP′PER: one of the most anciently known metals. In the earlier times, copper does not appear to have been used by itself, but always in admixture with other

metals, principally tin, forming what is now called bronz (q.v.). There is every reason to believe, that next to the large quantities of tin which they obtained, one of the great inducements which the Phœnicians had in making searches for metals in Great Britain was the C. which they procured in their workings in Cornwall.

Sources of Supply.—The first copper mine worked in the United States was the Simsbury mine at Granby, in Connecticut. The record of this mine extends back to the year 1705. It was worked until 1770, but was not profitable, and only a small quantity of ore was taken out. During the War of the Revolution it was used as a prison, and to-day it is an object of interest on that account. About the year 1719, the Schuyler mine, near Belleville, N. J., was opened and became one of a number of small mines which were worked in that section of the country for a series of years following. The Gap mine, in Lancaster, Pa., was started in 1732. The great development of the copper-mining industry at Lake Superior soon placed the United States in the front ranks of the copper-producing countries of the world, and the product of these mines, being of a quality much finer than the copper produced abroad, naturally took the place of the foreign product for home consumption. Copper production in the United States from 1845 to 1880 kept pace with home consumption, a comparatively small quantity being exported up to the last named period, so that the record of the copper produced in the United States between the periods named will indicate the progress made in manufactures of brass and copper. Beginning in 1845 with a product of 100 tons (which was much less than the quantity required for home consumption), the record for periods of 10 years is as follows: 1850, 650 tons; 1860, 7,200 tons; 1870, 12,600 tons; 1880, 27,000 tons.

Comparatively little fine copper was imported to the United States after 1860. In 1879 the Lake Superior region furnished about 83 per cent of the total quantity of copper produced here, but after 1880 the opening of the copper-mining regions of Arizona and Montana increased the output largely beyond the quantity required for domestic use. A heavy exportation at once followed, and this country became one of the world's great sources of supply. The quantity of copper produced in the United States in 1903 is as follows:

1903	Tons (2,240 pounds)
United States production	300,000
Importations	69,530
Exported from the United States	142,190
Estimated consumption in the United States	219,000

It is impossible to ascertain the stock of copper now neld in the United States, but it is known that there is a constant stock equivalent to two months' production, either in process of treatment or in transit to market, without considering the stock carried in reserve.

COPPER.

Ores of Copper.—The copper obtained in the Lake Superior region is practically all in the metallic form, occurring in masses that vary in size from sand to large masses weighing tons. The largest mass of native copper yet found was discovered there in February 1857, in the Minnesota mine. It was 45 feet long, 22 feet wide at the widest point, had a maximum thickness of 8 feet, was about 90 per cent copper, and weighed something like 420 tons. In the Montana region the metal occurs mostly in the forms of sulphides, passing through all gradations from chalcocite to chalcopyrite, with considerable quantities of bornite. In Arizona the principal ores are cuprite, malachite, azurite, and chalcocite. Chalcocite (known also as 'vitreous copper,' or 'copper glance') is of a leaden-gray color, and has the composition Cu_2S. It has a specific gravity of about 5.6, and contains (when pure) 79.8 parts of copper to 20.2 of sulphur. Bornite, erubescite, or purple copper, Cu_3FeS_3, has a specific gravity of from 4.8 to 5.4, and is brownish-red in color, often with an iridescent tarnish, in which blue is apt to predominate. Chalcopyrite, yellow copper ore, or copper pyrites, has a specific gravity of about 4.2, and a composition as indicated by the formula $CuFeS_2$. It occurs in various shades of yellow, often with a lively iridescence. When pure it contains 34.5 parts of copper to 30.5 of iron and 35.0 of sulphur. Cuprite, or red oxide of copper, Cu_2O, is commonly red in color, with an adamantine lustre; but it is sometimes leaden gray, with a submetallic lustre. It has a specific gravity of from 5.8 to 6.2, and, when pure, contains, 88.8 parts of copper to 11.2 of oxygen. Azurite, blue carbonate of copper, or chessylite, has the formula $2CuCO_3.Cu(OH)_2$, and is azure blue in color. When pure it contains 69.2 parts of cupric oxide to 25.6 of carbon dioxide and 5.2 of water. Malachite, or green carbonate of copper, is green in color, and has the formula $CuCO_3.Cu(OH)_2$.

PRINCIPAL COPPER MINES OF UNITED STATES.

Anaconda	93,500,000
Boston and Montana	90,750,000
Calumet and Hecla	76,490,869
Copper Queen	46,885,000
Arizona Copper Company	30,821,842
Montana Ore Purchasing Company	29,898,980
Calumet and Arizona	25,535,857

Chemistry.—The chemical symbol for copper is Cu (*cuprum*), and the atomic weight of the metal is 63.1 if H=1, and 63.6 if O=16. Copper forms two distinct series of salts, known respectively as 'cuprous' and 'cupric' compounds. In the cupric series the metal is a dyad, while in the cuprous series it enters into the ordinary formulæ as though it were a dyad. Structural formulæ have been given, however, which indicate that the metal is really a dyad in both cases. The cupric series of salts embraces those compounds that are most

familiar in the arts. Cupric oxide (known also as copper monoxide, or black oxide) is formed when metallic copper is heated in the presence of air. Cupric oxide is used in the laboratory for effecting the combustion of organic substances, the oxide being intimately mixed with the body to be oxidized, and the whole raised to a red heat, at which temperature the cupric oxide readily gives up its oxygen to either hydrogen or carbon. Cupric oxide (the formula of which is CuO) is soluble in acids, and yields, with them, salts which crystallize well. If a solution of any of these salts be made alkaline by the addition of a caustic alkali, a light blue precipitate of cupric hydrate, $Cu(OH)_2$, is thrown down. Upon heating to 212° F., this parts with a molecule of water and becomes reduced to the black oxide, CuO. Ordinary copper sulphate (cupric sulphate, or 'blue vitriol') is manufactured in large quantities by dissolving scales of copper oxide (CuO) in sulphuric acid. It forms large blue triclinic crystals, which have the composition $CuSO_4+5H_2O$. Cupric chloride, $CuCl_2$, is formed by dissolving cupric oxide in hydrochloric acid, or by acting upon metallic copper by chlorine gas. Cupric sulphide, CuS, is the familiar black precipitate that is obtained when sulphuretted hydrogen gas is passed through an acid solution of a copper salt. Copper carbonate, $CuCO_3$ has not been prepared in the pure state, but a green precipitate having the formula $CuCO_3+Cu(OH)_2$ is thrown down when carbonate of potassium or of sodium is added to a solution of a copper salt; this precipitate being identical in composition with the mineral malachite. Cuprous oxide, Cu_2O, or red oxide of copper, occurs native in red octahedral crystals.

COPPERAS, n. *kŏp'pĕr-ăs* [F. *couperosc;* OF. *coperose,* copperas: It. *copparosa,* copperas—from L. *cupri rosa,* the rose or flower of copper]: familiar term for the sulphate of iron; green vitriol: see IRON.

COPPERED, COPPERING, in Ship-building: terms used in reference to the sheathing applied to the bottom of timber-built ships. The copper so used is in sheets, weighing from 18 to 32 ounces per sq. ft., and measuring usually 48 inches by 14. A layer of felt, paper, or coarse linen, is first applied to the planking; and the copper is nailed down upon it. So much of the bottom as is immersed in the water is thus covered, protecting timbers from mollusks, cirrhopods, and weeds; consequently, the ship can sail quicker than if no such sheathing were applied. Some builders copper their ships up to the load-water line, while others go no higher than the light-load line; there being a difference of opinion whether the intermediate space, sometimes dry and sometimes wet, ought to expose a wood or a copper surface.

A *copper-bottomed* ship always ranks better at Lloyd's than one not so sheathed. The same is the case with a ship

said to be *copper-fastened;* i.e., in which bolts of copper are used instead of iron in those parts of the ship immersed in water. Ships can be insured at a lower premium when thus provided.

COPPERHEAD (*ancistrodon contortrix*): North American serpent, known locally also as 'chunk-head' and 'deaf-adder': is found from New England to Fla., between the Atlantic Ocean and Alleghany Mountains: is exceedingly venomous, and in point of danger ranks next after the rattlesnake. It has a thick, triangular head, poison fangs in the upper jaw, long thick body, smooth scales, and horny tipped tail, and in color varies from nut-brown to flesh tints, with darker transverse bars. In length it seldom exceeds three feet, and averages 20 inches.

COPPER IN'DIGO: ore of copper of an indigo-blue color, found in spheroidal masses, in Thuringia and Vesuvius; a very nearly pure sulphuret of copper. Its composition in 100 parts, is copper, 64¾; sulphur, 32¾; iron, ½; and lead, 1.

COP'PERMINE RIVER—so named, in common with the mountains to the west of it, from the metallic products of the vicinity—enters a bay of the Arctic Ocean about lat. 68° n., and long. 116° w. Its overland discovery by Lieutenant Hearne, then of the Hudson's Bay Company's service, in June 1771, excited considerable interest, as incontestably proving that the supposed Strait of Anian, whatever might be the truth as to its westward terminus, had its eastward outlet, if any, only in the Icy Sea. The C. R. rises near a feeder of Great Bear Lake, which itself is tributary to the Mackenzie—the former of the diverging watercourses taking a vastly shorter route to the coast than the latter. Hence the C. R. is throughout little better than a series of falls and torrents, being thus, even without regard to its isolated position, but little available in itself for navigation.

COPPICE, n. *kŏppĭs,* or COPSE, n. *kŏps* [OF. *copeiz,* wood newly cut: Gr. *kop'adēs,* trees cut down]: a natural wood or plantation, of trees of small growth, of which the trees are cut over from time to time, without being allowed to attain the size of timber trees, sending up new shoots from their roots or stools. Some kinds of trees—as the firs—are incapable of being treated in this manner, refusing to send up new shoots; but many—as the oak, birch, chestnut, ash, elm, maple, alder, hazel, and willow—very readily do so, at least if they have not been allowed to attain too considerable a size before being cut over. C.-woods are planted sometimes to vary and beautify the landscape, but usually for profit. It often happens, that owing to scantiness of soil or to unfavorable subsoil, oaks and other trees, after growing vigorously for a number of years, are arrested, and remain almost stationary in their growth. In such circumstances it is advantageous to cut them over early, and to treat the plantation as a C., the former vigor being again manifested in the young shoots, and the land yielding in this way a greater return. Oak is much planted

as coppice-wood, in consequence of the demand for its bark: in some regions the trees are cut over every 12 years. The largest pieces of the wood are used for making wheel-spokes, and for other purposes of timber; the smaller portions for charcoal and firewood. Ash is sometimes planted as coppice with a view to using the strong elastic wood for handles of implements, hurdles, hoops, etc. Chestnut copses are planted in England to supply hop-poles. Hazel is a very common coppice-wood, in demand for making crates, etc. Some species of willow, especially *Salix caprea*, are cultivated as coppice, and cut every five, six, or seven years, for hoops, crates, etc.: see WILLOW.

COPPIN, n. *kŏp′pĭn:* see COP.

COPPLE-CROWN, *kŏp′pl-krown:* a crested crown or head.

COP′RA: dried kernel of the cocoa-nut, from which cocoa-nut oil has been expressed. It is much used in India as an ingredient of curries.

COPRIDÆ, n. plu. *kop′rĭ-ɗ* [Gr. *kopros*, dung; L. fem. plu. suf. *-idæ*]: in some classif. ;ations, a family of lamellicorn beetles, though Swainson reduced them to a series of genera placed under his sub-family *Scarabeinæ*. They make large deep holes beneath dry dung. They abound throughout the world, the largest being in Africa and the East Indies. COPRIS, n. *kŏp′rĭs*, the typical genus of the family *Copridæ*.

COPROLALIA, n. *kŏp-rō-lāl′i-a* [from *copros*, filth, and *lalia*, speech]: a sympton occurring in nervous disorders such as hysteria, and consisting in the impulsive interjection of obscene words into ordinary conversation. It is in the nature of a sudden spasm or involuntary impulse, of which the subject is at times wholly unaware: see HYSTERIA.

COPROLITE, n. *kŏp′rō-līt* [Gr. *kopros*, dung; *lithos*, a stone]: in *geol.*, the petrified dung of animals appearing as gray, hard, nodular masses. COP′ROLIT′IC, a. *-lĭt′ĭk*, containing or resembling coprolites. COPROPHAGOUS, a. *kŏp-rŏf′ă-gŭs* [Gr. *phagein*, to eat]: feeding on excrements or filth. COPROPH′AGI, n. plu. *jī*, or COPROPH′AGANS, n. plu. *-găns*, a family of beetles which live on the dung of animals. It includes the genera *Ateuchus* (that which contains the sacred beetle of the old Egyptians), *Copris*, *Onitis*, *Onthophagus*, and *Aphodius*.

COP′ROLITES, in Geol.: fossilized excrements of animals, found in the Secondary and Tertiary strata of the earth's crust. Their true nature was inferred first from their occurrence in the bodies of several species of *Ichthyosaurus*, in the region where was situated the intestinal tube. It has been since shown that they are the voidings chiefly of saurians and of sauroid fishes. They often contain portions of scales, bone, teeth, and shells, the indigestible parts of the food on which the animals lived. Occasionally, they may be found exhibiting the spiral twisting

and other marks produced by the conformation of the intestinal tube, similar to what is noticed in the excrement of some living fishes. These peculiar markings obtained for them the name, when their true nature was unknown, of 'larch-cones' and 'bezoar-stones.' Coprolites are found to contain a large quantity of phosphate of lime; and as this forms a valuable manure, the deposits containing them have been of late years largely quarried by the manufacturers of artificial manures.

COPS—COPING [see COP]: merlons or rising parts of battlements; but the term coping is usually applied to the covering course of a wall, which is made either sloping or round, so as to throw off water. Where the coping is of hewn stone, it is frequently ornamented with a circular molding running along the top, and sometimes the angle at the top is simply taken off, to prevent it from being chipped.

COPSE, n. *kŏps:* another form of COPPICE, which see. COP'SY, a. *-sĭ*, having copses.

COPSYCHOS, n. *kŏp'sĭ-kŏs* [Gr. *kopsichos*, a blackbird]: genus of birds, sub-family *Erythacinæ*, or Robins.

COPTIC, n. *kŏp'tĭk* [a supposed corruption of the L. *Ægyptĭŭs*, an Egyptian: Gr. *Aiguptos*, Egypt]: the language of the ancient inhabitants of Egypt, called Copts: ADJ. pertaining to the Copts. COPTS, n. plu. *kŏpts*, or COPHTI, n. *kŏf tī*, descendants of an anc. Egyptian race; the Christian inhabitants of Egypt. The Coptic are in number about 150,000, only about a fourteenth of the population of the country. There are about 10,000 of them in Cairo. They are not of great stature, have black eyes, and rather curly hair, and in a number of points resemble the ancient Egyptians, from whom also they have inherited the custom of circumcision. They dress like the Moslems, but are generally distinguished by a black turban. Their character is in general gloomy, deceitful, and avaricious. They are very expert in calculations, and are therefore employed as accountants and book-keepers, by which they have acquired great influence in the country, filling very important posts. In religion they are generally monophysites (q.v.) of the Jacobite sect; smaller sections of them, however, are united to the Greek and Roman Catholic Churches. They ascribe their conversion from heathenism to St. Mark, whom they regard as the first patriarch of Alexandria. Their highest dignitary is the patriarch of Alexandria, whose residence, however, is in Cairo. Their other orders of clergy are bishops, archpriests, priests, deacons and monks. The patriarch is named by his predecessor from among the monks of the convent of St. Anthony, or chosen from among them by lot. He is not permitted to marry. He nominates the Metropolitan of Abyssinia: see ABYSSINIA. There are 12 bishops. The Coptic are very strict in their religious observances, and hate other Christian sects even more than they hate the Moslems. They baptize by immersion; practice unction, exorcism, and

auricular confession; and celebrate the Lord's Supper with leavened bread which has been dipped in wine. They keep Friday with great strictness as a fast-day. They have many schools, but only for boys, who learn the Psalms, Gospels, and Apostolic Epistles in Arabic, and then the Gospels and Epistles in Coptic. The Coptic, however, is not grammatically taught, and is not now a spoken language, having been everywhere supplanted by the Arabic. It has not been spoken in Lower Egypt since the 10th c., but lingered some centuries longer in Upper Egypt. It is, however, still used by the Coptic in their religious services, but the lessons, after being read in Coptic, are explained in Arabic. The Coptic literature consists in great part of lives of saints and homilies, with a few Gnostic works. The alphabet was borrowed from the Greeks at the time of the introduction of Christianity, with the addition of a few letters. There are two principal dialects of the language—the Sahidic or Upper Egyptian, and the Memphitic or Lower Egyptian which is sometimes exclusively called Coptic. A third dialect, the Bashmuric, of which only a few remains exist, was spoken in the Delta, and is interesting from its points of resemblance to the language of the hieroglyphics.

COP'TIS: genus of plants of the nat. ord. *Ranunculaceæ*, *C. trifoliata* is a native of the north of Europe, Siberia, Greenland, Iceland, and N. America. It grows in swamps. From its long, thread-like, golden-yellow rhizomes, it derives the name *Golden Thread*. Its leaves have three wedge-shaped leaflets, and its leafless stems bear each a solitary, rather pretty white flower. Very similar to the *C. trifoliata* is *Coptis teeta*, the *Golden Thread* of Assam, the root of which has long been in high repute in Assam and neighboring countries. It has come into extensive use in India as a bitter tonic, and is sold at a very high price. Great efficacy is ascribed to it as a tonic for patients beginning to recover; but it is of no value as a febrifuge.

COPULA, n. *kŏp′ū-lâ*, pl. *copulas*, *copulae -lâz*, *-lē*, [L. *copula*, a band, bond, link,—from *co*, together and *apula*, from *apere*, pp. *aptus*, join]: in logic and grammar that part of a proposition which joins the subject and predicate. In 'Socrates is mortal' 'is' is the copula. The copula is always some part of the verb *to be* and it expresses some relation of *assertion* between Subject and Predicate. In many propositions the copula does not appear separately, but the proposition may be so analysed as to isolate the copula. For instance, 'the sun shines' becomes formally 'the sun *is* a body which shines.' This formal analysis of propositions must not be taken to mean that, as expressions of actual thought, propositions are mechanical sums or external juxtapositions of Subject, Predicate, and Copula. As the expression of a genuine *judgment* (q.v.) a proposition is a unitary utterance. The copula really expresses the *act of thought* in which a relation is asserted of a subject and predicate. COP'ULATE, v. *-lāt* [L. *copulātus*,

joined]: to unite in pairs; to have sexual intercourse. COP'ULATING, imp. COP'ULATED, pp. COP'ULA'TION, n. *-lā'shŭn* [F.—L.]: sexual intercourse; in *OE.*, union in general. COP'ULA'TIVE, a *-lā'tĭv*, that unites or couples; that connects: N. in *gram.*, a word which connects. COP'ULA'TORY, a. *tėr-ĭ*, that unites.

COPY, n. *kŏp'ĭ* [F. *copie*, an imitation—from mid. L. *copĭă*, a transcript or copy—from L. *copiă*, abundance: It. *copia—lit.*, one of many or abundance of duplicates]: an imitation; a likeness of a thing; a pattern or example for imitation; V. to write, print, paint, etc., from an original or pattern; to imitate; to transcribe; to follow in habits or manners; to try to be like; to act in imitation of. COP'YING, imp. *-ĭ-ĭng*. COP'IED, pp. *-ĭd*. COP'IER, n. *-ĭ-ėr*, one who. COP'YIST, n. *-ĭ-ĭst*, a transcriber or imitator. COPYRIGHT, n. property in the wording or arrangement of a literary work, or in the artist's ideas in a work of the fine arts. COPY BOOK, a book containing examples for imitation, as of writing. COPYHOLD, in *England*, a tenure of land or houses by copy of court-roll. COPYHOLDER, n. one who. COPYING-PRESS, a machine for taking copies from written letters.—SYN. of 'copy, n.': example; transcript; duplicate; counterfeit; sample; instance; model; illustration; case.

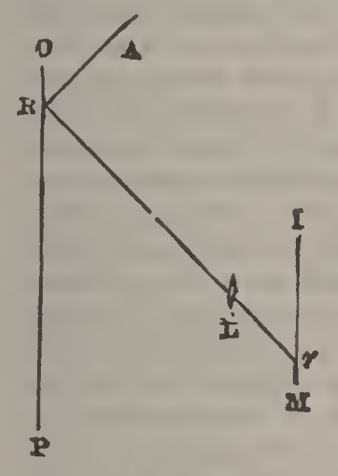
COP'YHOLD, in the Law of England and Ireland: species of estate or right of property in land, in Ireland and England, nearly resembling in many particulars the feudal rights of Scotland. Copyhold is expressed technically as 'tenure by copy of court-roll, at the will of the lord, according to the custom of the manor.' This means, that it is tenure of land, being part of a manor, the title being evidenced by the court-rolls of the manor, and the right of the owner being in conformity with the immemorial customs of the manor. The addition, 'at the will of the lord,' serves only as a memorial of the derivation of this species of estate from the estates granted in old times to the bondsmen, or *villeins* (q.v.), which were of course resumable at the pleasure of the lord. But the will of the lord is now absolutely controlled by the custom of the manor, which forms the law of the tenure; and as this custom must be immemorial, *i.e.*, extending to the reign of Richard II., no copyhold can now be created. Legal provision has been made for the gradual extinction of this inconvenient species of tenure.

COPY'ING, in Photography: reproduction of paintings, engravings, manuscripts, maps, etc. For the kinds of camera and lens most suitable for the purposure, see the respective titles. The quality and condition of chemicals necessary are based upon the facts, that long exposure is almost invariably required, and that, in the majority of cases, it is desired to copy black marks upon a white ground, as in a sheet of music, for example. Where it is obvious that nothing that can be called a middle tint is required, but simply pure black and white, recourse should be had to organic matter in the bath; a little acetate of

soda, and an extra amount of acetic acid, may be added, and an old collodion containing free iodine employed.

It is important that the work or surface to be copied should be placed in a strong light, and exactly at right angles to the axis of the lens, which should be furnished with a *small* stop. These three conditions, it will be seen, are such as are calculated to insure density in the blacks of the negative, freedom from distortion, and sharpness at the edges of the picture. The copying of oil-paintings seems to the amateur, at first sight, to present almost insuperable difficulties, on account of the reflected light from the varnish passing through the lens, and producing black patches on the negative This may, however, be completely avoided by the employment of a lens of long focus, which admits of the oblique pencils of light passing off without entering the camera.

This will become more intelligible by reference to the following diagram, in which OP is supposed to be an oil-painting, L the lens, and IM the image. Let A be a ray of light, incident at R; reflection at the varnished surface will cause it to pass through the lens, and come to a focus on the sensitive surface at *r*, causing an increased action at that point, resulting in a black patch. If, however, a lens of longer focus be employed, and the camera be moved further from the picture (as it must be to obtain the same sized image), as shown by the dotted line, it will be seen that no reflected rays can fall upon the sensitive plate, but that they all will pass beyond the field of view.



Attention to the laws of the reflection of light, will suggest to the reader the importance also of avoiding a bright light immediately behind the camera, as the rays of light would then fall on the varnished surface, nearly at right angles, and be reflected into the camera. The oil-painting; therefore, though placed in strong sunshine, for the purpose of giving vigor to the more obscure parts, should be so arranged as to allow the light to fall on it at an angle of about 35° or 40°.

In copying transparent negatives, a somewhat different arrangement is required, as will appear from the following facts. Every object to be copied may be regarded, for the sake of illustration, as an assemblage of bright points, from each of which divergent pencils of rays are reflected, and suffer refraction on passing through the lens; an engraving or oil-painting is, in fact, in its relation to the sensitive surface, the *source of light.* In a negative, however, many of the parts of which are transparent glass, it is manifest the case is different; for if we suppose the sun or a luminous background to be placed behind the negative, *that* will act as the source of light, and any rays coming

therefrom will pass almost directly through those parts of the negative which are bare glass, to the lens; thus producing the same effect as if the transparent parts were opaque, but luminous, and emitted divergent pencils of light. It is necessary, therefore, that the rays should be made to intersect at those points where bare glass exists, and this may be accomplished by employing what is called a condensing lens, by which means negatives may be most successfully copied, by placing an artificial light behind it, or still better, by reflected sunshine through it.

Negatives are sometimes copied on glass by direct superposition in the ordinary pressure-frame, such as is used for printing photographs on paper, in which case, dry plates are used, prepared either by the albumen or collodio-albumen process; and the latent image so obtained yields a transparent positive when developed by gallic or pyro-gallic acid.

COPYING-MACHINES: contrivances for procuring duplicates of writings without the labor of transcribing them. The various machines may be reduced to two classes. In the one, the writing is first made, and then copied; in the other, the copy and the original are produced at the same time. The essence of the first method is this:—In writing the original, an ink is used that is made for the purpose, or common ink thickened by the addition of a little sugar. When the writing is dry, a damped sheet of thin unsized paper is laid upon it, and over this a piece of oiled paper. The whole is then subjected to pressure, and the damped paper is found to have taken off an impression of the writing. It is of course the reverse of the original, but the nature of the paper allows it to be read right on the other side. The machines for communicating the pressure are of various kinds. Some pass the sheets between rollers like the copper-plate press; others act on the principle of the common printing-press. A simple plan is to wrap the sheets round a wooden roller of about an inch diameter, lay this upon a table, and roll it under a flat board, pressing all the while. Another very common method of copying, is by means of prepared blackened paper laid between two sheets of thin writing-paper. The writing is traced firmly on the upper sheet, with a steel or agate point, or common black-lead pencil, and the lines are found transferred in black from the blackened sheet to the paper adjacent. By having several of these blackened leaves, a number of copies may be produced at once. The blackened paper is prepared by saturating it with a mixture of lard and lampblack, and cleaning it so far that it will not soil paper unless pressed against it.

For many years the last described process was most generally used in the United States. The multiplication of newspapers after the civil war, the rapid organization of agencies for collecting news, and the great increase of freight traffic by associated railroads necessitated a speedy method of producing numerous copies of identical reports, and the above system, commonly called manifolding, seemed to meet all requirements. It is still used by re-

porters and agents of railroad freight 'pools' in preference to more recent devices. The next most common form is provided by what is called a gelatine pad; and many modifications are in the market under a variety of patented names, such as the pentograph, hektograph, copyograph, etc. They all are composed of gelatine, or glue, and glycerine, and require a special kind of ink based on violet aniline, where a large number of copies are wanted; or on black, green, or red where a small number will suffice. Any one may prepare such a pad by following these directions: Take 3 oz. of gelatine, or white glue, soften it in cold water, boil the mass an hour in 10 oz. of glycerine, taking care that air bubbles do not form on the surface, then pour the mixture into a pan made of block tin about three-quarters of an inch deep and of a sufficient width and length to hold any size sheet of paper likely to be used, as note, letter, or cap. The mixture cools rapidly, making an elastic pad with a smooth surface. When from frequent use the surface becomes too rough or uneven for neat copying, the composition may be dissolved by placing the pan on a hot stove, care being taken lest it come to the boiling-point and thus be filled with air bubbles. When thoroughly dissolved, the pan should be removed to a cool place where the composition will soon solidify. By careful usage the same pad will last several years, and its cost when home-made is very slight. The ink commonly used is violet in color, because its lasting properties are equal to 100 copies of a single writing where the sheets are used expeditiously. Black will produce about 10 copies, green 30, and red 60. Ink may be made by dissolving 2 oz. of citric acid in 6 oz. of water, and then adding an oz. of violet aniline; or by boiling an oz. of aniline in 7 oz. of water, and adding when cool an oz. of alcohol, a half oz. of ether, three-quarters oz. of glycerine, and a few drops of diluted carbolic acid. Should the ink thicken with age, add a few drops of alcohol before using. The apparatus is used by writing with an ordinary pen and the special ink on a sheet of ordinary writing paper. The sheet is then placed, written side downward, on the surface of the pad, the hand is firmly passed over it once or twice, and the sheet carefully lifted by a corner. The writing then appears in reverse on the pad. To copy, place a clean sheet evenly on the pad, rub the hand over it once, and remove in the same way as the original. When sufficient copies have been made, the ink should be rubbed from the pad with a sponge and tepid water, and the pad laid aside in a cool place for future use. These are the principal devices in commercial and general business use. Besides them are, (1) an adaptation of the manifolding process to the typewriter, by which four clear copies may be obtained; (2) Edison's electric pen; (3) the French stenographic machine; (4) Zachos's steno-phonotype reporter; (5) the blue process, used mainly by architects and engineers; (6) the papyrograph; (7) the automatic telegraph machine, which perforates paper with the Morse telegraphic characters. See MIMEOGRAPH.

COPYRIGHT.

COP'YRIGHT: author's right of property in any work which he writes, and which, under certain limitations, is transferable to his heirs and assigns. Such is the chief or general meaning of the term, which now, however, embraces several varieties of right.

Books.—The idea of a right of property in literary composition is of modern origin. Nothing is heard of C. previous to the invention of printing, nor for a long time afterward. In ancient and mediæval times, books appear to have been transcribed freely by other parties than their authors, and as freely disposed of, often at great prices. After the introduction of printing, the liberty to publish books became the subject of licenses and patents; and these privileges may be said to have constituted a special monopoly of the nature of copyright. In the absence of any license or protection of this kind, authors could only resort to the common law to vindicate their real or supposed rights. But the common law of England was silent on the subject. There were serious differences of opinion among lawyers as to the availableness of an exclusive right in literary composition, viewing it as a chattel or thing that could be held, inherited, or assigned. How, it was asked, could ideas, or the way of writing a narrative, be made property? Supposing, however, that a certain structure of ideas and written words could be invested with the quality of property, it was reasonable to conclude that the property should be absolute and perpetual to the owner, his heirs and successors; such being the case it would be proper for the heirs of Shakespeare, Milton, Bunyan, and other literary luminaries of past times, to claim possession of the works of their respective ancestors; leaving them, of course, the right either to maintain a monopoly, or to suppress the works altogether. Such were the questions that puzzled the English jurists of the early part of the 18th c. A compromise appears to have been made. No decision was come to, as to whether literary composition was property in the ordinary sense of the word. Yet, looking at it as a thing on which thought and labor had been expended, and professedly 'for the encouragement of learning,' it was deemed worthy of legal protection for at least a period limited by considerations of public policy. An act of parliament was accordingly passed on the subject in 1709.*

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* Until this act came into operation, the law of Scotland, as regards copyright, had been as defective as that of England. Under date 1699, Nov. 9, the following occurs in the *Domestic Annals of Scotland*, by R. Chambers vol iii.: 'It was customary for the Lords of Privy Council to grant exclusive right to print and vend books for certain terms—being all that then existed as equivalent to our modern idea of copyright. Most generally, this right was given to booksellers and printers, and bore reference rather to the mercantile venture involved in the expense of producing the book, than to any idea of a reward for authorcraft. Quite in conformity with this old view of literary rights, the Council now conferred on George Mossman, stationer in Edinburgh, "warrant to print and sell the works of the learned Mr. George Buchanan, in one volume in folio, or by parts in lesser volumes," and discharged "all others to print, import, or sell, the whole or any part of the said Mr. George his works in any volume or character, for the space of nineteen years."' Some

This, the first copyright act, 8 Anne, c. 19, sets out as follows: 'Whereas printers, booksellers, and other persons have of late frequently taken the liberty of printing, reprinting, and publishing, or causing to be printed, reprinted, and published, books and other writings, without the consent of the authors or proprietors of such books and writings, to their very great detriment, and too often to the ruin of them and their families: for preventing, therefore, such practices for the future, and for the encouragement of learned men to compose and write useful books, may it,' etc. The chief provisions of the act were, (1.) That authors who, after 1710, Apr. 10, had not sold their C. of works in print, were to have the sole right of printing them for 21 years; (2.) Authors of books not printed and published, and their assignee or assigns, to have the sole liberty of printing and reprinting such book and books for the term of 14 years, to commence from the day of the first publishing the same; (3.) After the expiration of the said term of 14 years, the sole right of printing or disposing of copies to return to the authors, if they were then living, for another term of 14 years.

Under this act, authors disposed of the C. of their works for the specified period, at the end of which, 28 years at most, the C. lapsed. Although the works might then have been considered public property, a custom arose among publishers of not interfering with each other's lapsed copyrights; and in a sense each assumed a kind of perpetual monopoly of the works which he had purchased for a terminable period. So stood matters, when Alexander Donaldson, an Edinburgh bookseller, (see BOOK-TRADE), broke through the conventional regulations. by issuing cheap reprints of works out of copyright. There ensued a litigation, of which it is necessary to present some details. At divers times in 1729, James Thomson sold the C. of his *Seasons* and other poems to Andrew Millar, a London bookseller, for sums amounting to £242, 10*s*. Thomson died in 1748. According to the Act 8 Anne, c. 19, the utmost length to which the C. of these works could be extended was 28 years, which terminated in 1757. Millar died in 1768, and his executors, in 1769, sold by auction the C. of the works in question for £505. The purchasers were 'Beckett and others.' This sale was, in reality, an imposition; for the C. had expired 1757. Aware of this fact, Donaldson, 1768, issued a cheap edition of Thompson's *Seasons*. He was now challenged for an invasion of C.; and in 1771, Beckett and others applied for, and procured, an injunction from the court of chancery to restrain him from further printing and selling the work, and to make him answerable for the profits that he had already realized. The only explanation of this extraordinary proceeding is, that the applicants for the injunction imagined that at common law they had acquired a property in Thomson's *Seasons* in all time coming. The question at

other instances of the same kind are given, making it clear that in these times books could not be printed in Scotland without authority from the Privy Council.

issue was nothing less than the creation of perpetual monopolies in literature—not for the benefit of authors and their families, but for certain publishers and their assigns. The notion of a common-law right had prevailed in granting the injunction, and the validity of such a notion was now for ever to be determined. Donaldson appealed to the house of lords. The chief points pressed for consideration were, whether at common law an author had the sole right of printing his works, and whether, possessing a right of that kind, it was taken away by the statute, 8 Anne, c. 19. The lords differed in their opinion, but the decision finally was, that any right at common law was impeached and taken away by the statute; and the decree of the court of chancery was accordingly reversed: see Brown's *Parliamentary Cases*, II., p. 136. By this famed decision, it was settled that claims of C. rest altogether on the statute and its interpretations. Ever since, any one is at liberty to print and sell works of which the statutory term of C. has expired; on the simple ground, that all such works are public property.

The C. law did not extend to Ireland till after the union with that country, when (1801) the whole united kingdom was included by the Act 41 Geo. III. c. 107. Previous to this time, many of the most saleable of the British C. works were freely reprinted in Dublin, and occasionally found their way across the channel to the annoyance of English authors and publishers. The next act concerning copyrights was that of 54 Geo. III. c. 156, in 1814, by which the period of C., instead of being 14 years, and contingently for 14 years more, was fixed to be 28 years certain, and for the residue of an author's life, if he were living at the end of the 28 years.

The impetus given to literature during the early part of the 19th century, by the popular and voluminous writings of Scott, Byron, Moore, Wordsworth, and others, along with the growing taste for reading among the middle and less affluent classes, greatly increased the market value of C. in every species of literary production. As a natural consequence, that kind of disinterestedness so strikingly demonstrated in Robert Burns, who could hardly be prevailed on to accept a few pounds complimentarily in requital for hundreds of the most beautiful lyrics, was no longer seen; on the contrary, it became a recognized principle that an author was entitled to regard the product of his brain as purely a mercantile commodity. At length, under an impulse communicated by the assigns of some valuable copyrights about to expire, and on the assumption of benefiting the families of certain popular writers, the legislature was induced to extend the term of copyright.

By the Act 5 and 6 Vict. c. 45 called Talfourd's or Lord Mahon's act, 1842, July 1, the term of C. was extended as follows: 'And be it enacted that the copyright in every book which shall after the passing of this act be published in the lifetime of its author shall endure for the natural life of such author, and for the further term of seven years, commencing at the time of his death, and shall be the pro

perty of such author and his assigns: provided always, that if the said term of seven years shall expire before the end of 42 years from the first publication of such book, the copyright shall in that case endure for such period of 42 years; and that the copyright in every book which shall be published after the death of its author shall endure for the term of 42 years from the first publication thereof, and shall be the property of the proprietor of the author's manuscript from which such books shall be first published, and his assigns.' In the case of subsisting copyrights, the term was to be extended to 42 years, except when they belonged to an assignee for other consideration than natural love and affection; in which case they were to cease at the expiration of the 28 years, unless their extension were agreed to between the proprietor and author. In this act, there is a remarkable clause giving power to the judicial committee of the privy council to license the publication of books of importance, which the proprietor refuses to republish after the death of the author. Formerly, there was an obligation on publishers to deliver 11 copies of new works to certain universities and other public institutions; the obligation was now modified to 5 copies. The importation of English C. works printed in foreign countries is prohibited. C. is declared to be personal property, and may be bequeathed as such; in case of intestacy, it is to be subject to the same law of distribution as other personal or movable estate. The old obligation to register the C. of new works at Stationers' Hall was also modified; registration is no longer obligatory, but the practice of registering is still requisite for the sake of evidence in making good claims of copyright. Forms of registration and assignment are given by the act, but the use of them is not indispensable. The law of C. makes no distinction between British subjects and aliens. A foreigner may own the C. of a work printed first in Great Britain; thus an American author may secure the copyright of his book in Great Britain by first publication there. A British author cannot receive the same benefit in return, unless some portion of his work be written on American soil. Attempts are sometimes made, by issuing editions of a work simultaneously in the United States and England on the same day, to secure both British and American copyrights.

The ordinary process of stopping the issue of unauthorized reprints of C. works, which receive the name of pirated editions, consists, in the first place, in procuring an injunction from the court of chancery (if in Scotland, an interdict from the court of session), and of afterward raising an action of damages at common law. On all that concerns prosecution, as well as for many details respecting C. in its different varieties, see Godson and Burke's *Treatise or the Law of Copyright.*

Such is the history and general nature of the law of C. respecting books. The last-mentioned act, more explicit than previous statutes, remains the great charter on the subject Unfortunately, it still leaves some defects which it would require a fresh law to remedy. The extension of C. for the assumed benefit of authors and their families, which

is the leading feature of the act, must be pronounced generally worthless. In the great majority of cases, authors assign the C. of their manuscripts for a consideration to publishers, who, looking for remuneration within a reasonable length of time, cannot, and as a rule do not, give a higher price for a 42 than for a 28 years' copyright. The tendency of Talfourd's act is still more than ever to lock up copyrights in the hands of the original assigns, where they are apt to become torpid and useless. A remedy for this evil has lately been found in a practice followed by certain acute and enterprising publishers of cheap reprints. Buying up the unexpired copyrights of books which have gone somewhat out of notice, they issue them in a form suitable to the nature of their business; and such reanimated productions constitute no small share of the cheap volumes that invite public attention—the author and his heirs being not in the slightest degree benefited by the process of literary resurrection.

Extracts, Abridgments, etc —C. in a book entitles the proprietor to prevent extracts being made from it; but in practice, short extracts for the purpose of criticism, as in reviews, or for historical illustration, are tolerated. Unauthorized abridgments of C. works are deemed piracies, and their sale can be stopped. In such cases, however, the abridgment must show a clear adoption of the language or collocation of words of the original. It is now determined that no C. can be maintained in mere subject, information, or ideas. A writer may have put himself to great trouble to procure information on a particular subject; but the law does not recognize how information is procured. If a second writer use the information of the first (though that may have little regard to matters of fact), and make out of it a new work, there is no invasion of C. unless the words of the first have been at the same time taken. See Preface to Napier's *Memoirs of Dundee.*

Encyclopædias, Periodicals, etc.—The C. of articles contributed for and included in encyclopedias, magazines, reviews, or other periodical works, and of books published in a series, was regulated by the Act 5 and 6 Vict. c. 45. The C. of such articles, being paid for and assigned, belongs to the publisher, but he cannot publish them separately without the consent of the author. The author, however, may reserve the right of separate publication, and merely sell the right to use the article; but, should he republish any such article or articles, it may be done only in such manner as not to prejudice the right of the original publisher.

Dramatic Pieces and Musical Compositions.—These, with right of representation and performance are, by the act 5 and 6 Vict. c. 45, subject to the same C. as books. Strictly, a C. song cannot be publicly sung, or a tune publicly played, without the permission of the composer or his assigns. Since 1882 the author must print on the title page, that he reserves the right of performance. Verses must not be taken from a periodical or copyright work, and set to music, for sale, without permission. A C. work of fiction may be dramatized without permission.

Lectures and Public Addresses remain the C. of the person delivering them. By 5 and 6 William IV. c. 65, printers and publishers are liable to a penalty for printing and issuing spoken addresses without the consent of the author. It is understood that no one is at liberty to take down a sermon as delivered by a clergyman, and publish it without permission; the act, however (§ 5), makes some exceptions: protection is not extended 'to any lecture or lectures delivered in any university, or public school, or college, or in any public foundation, or by any individual in virtue of, or according to, any gift, endowment, or foundation.' Under this permissive clause, it appears that sermons delivered by clergymen of the established churches, in endowed places of public worship, are deemed public property.

Letters, and every kind of epistolary correspondence, are the property of the writer. The receiver of a letter may retain it for his own use, but, strictly, he cannot publish it without the permission of the sender or his heirs, neither can he sell it as a curiosity. The sale of letters of distinguished individuals is illegal, though ordinarily tolerated. See *Curtis* on the law of C. As to Scotland, see the case of the *Scotch Thistle* newspaper, in Irvine's report of the trial of Madeleine Smith.

Newspaper matter, when the newspaper in which it appears is registered under the copyright act only, is subject to the common law of C.; but practically, and for mutual convenience, the intelligence in one paper is freely copied by the more respectable class of papers with, and in the less respectable without, acknowledgment. The taking of leading articles in the same manner might doubtless be checked; as would also be the unauthorized adoption of existing newspaper titles.

Engravings, Maps, Charts.—C. in these is secured by several acts, more particularly the 17 Geo. III. c. 57. The term of C. is 28 years. Each engraving or map must have on it the date of publication and name of publisher. Those who infringe C., forfeit the plates on which the pirated engravings or maps were printed; they forfeit also every pirated sheet, and five shillings for every print undisposed of. There is no C. in subject. Any one may invent or delineate and sell pictures from subjects in C. books, without challenge. It is understood that in painting a portrait, C. remains with the artist, although he be paid for the picture, and the purchaser cannot take copies without permission or assignment. C. as to paintings, however, is ill defined and defective, and an improved law on the subject is said to be under consideration. See DESIGN, under which head is also noticed the C. of models, sculptures, casts, patterns of carpets and paperhangings, etc.

Copyright in the Colonies.—By the act 5 and 6 Vict. c. 45, the C. of books, etc., printed in the United Kingdom, is extended to all British colonies; and the act 8 and 9 Vict. c. 93, concerning the trade of the colonies, absolutely prohibited these dependencies from importing pirated editions of C works. Practically, this last-recited act was

unavailing. Large quantities of cheap reprints of British C. books continued to be imported from the United States into the British American possessions. Remonstrances against these irregularities at length led to some special legislation. It was ordained by the act 10 and 11 Vict. c. 95, that the colonies might respectively enact a law to enable them to import pirated C. works, on the plan of exacting custom-house duty on such works, the proceeds to be handed to the proprietors of the said copyrights. Colonial laws were accordingly enacted, in nearly all the British colonies except Australia. But the provisions were found quite inadequate. In 1874 the Dominion of Canada passed an act, confirmed by the imperial parliament 1875 (c. 53), for securing in Canada the rights of authors, and for prohibiting the importation into Canada of any work for which copyright under the colonial act had been secured. By this act, if there is copyright in the United Kingdom in a book, the author also becomes entitled to copyright also in Canada, on condition that his work, whether literary, scientific, or artistic, be printed and published, or reprinted or republished, in Canada. A copyright for 28 years from the recording thereof is now secured in Canada to authors; and if the author, or his wife or child, is living at the end thereof, then for 14 years longer.

Copyright in the United States.—Section 4,952 of the Revised Statutes of the United States, in force 1 Dec. 1873, as amended by the act of 18 June 1874, as amended by the act of 3 March, 1891, provides that the author, inventor, designer, or proprietor of any book, map, chart, dramatic or musical composition, engraving, cut, print, or photograph, or negative thereof, or of a painting, drawing, chromo, statuary, and of models or designs intended to be perfected as works of the fine arts, and the executors, administrators, or assigns of any such person, shall, upon complying with the provisions of this chapter, have the sole liberty of printing, reprinting, publishing, completing, copying, executing, finishing, and vending the same; and, in the case of a dramatic composition, of publicly performing or representing it, or causing it to be performed or represented by others. And authors or their assigns shall have exclusive right to dramatize or translate any of their works for which copyright shall have been obtained under the laws of the United States.

A printed copy of the title of the book, map, chart, dramatic or musical composition, engraving, cut, print, photograph, or chromo, or a description of the painting, drawing, statue, statuary, or model or design for a work of the fine arts, for which copyright is desired, must be delivered to the librarian of Congress or deposited in the mail, within the United States, prepaid, addressed 'Librarian of Congress, Washington, D. C.' This must be done on or before day of publication in this or any foreign country. Not later than the day of

publication in this country or abroad, two complete copies of the best edition of each book or other article must be delivered or deposited in the mail within the United States, addressed 'Librarian of Congress, Washington, D. C.,' to perfect the copyright. The freight or postage must be prepaid or the publications enclosed in parcels covered by printed penalty labels, furnished by the librarian, in which case they go free by mail (not express), without limit of weight, according to the rulings of the post-office department. Books must be printed from type set in the United States, or plates made therefrom; photographs from negatives made in the United States; chromos and lithographs from drawings on stone or transfers therefrom made in the United States. Without the deposit of copies above required, the copyright is void and a penalty of $25 is incurred. The law requires one copy of each new edition wherein any substantial changes are made to be deposited with the librarian of Congress.

No copyright is valid unless notice is given by inserting in every copy published, on the title-page, or the page following if it be a book; or if a map, chart, musical composition, print, cut, engraving, photograph, painting, drawing, chromo, statue, statuary, or model or design intended to be perfected as a work of the fine arts, by inscribing on some portion thereof, or on the substance on which the same is mounted, the following words, 'Entered according to Act of Congress in the year ——, by ————, in the office of the librarian of Congress, at Washington,' or, at the option of the person entering the copyright, the words: 'Copyright, 19—, by————.' The copyright law secures to authors and their assigns the exclusive right to translate or to dramatize any of their works; no notice is required to enforce this right. The original term of copyright runs for 28 years. Within six months before the end of that time, the author or designer, or his widow or children, may secure a renewal for the further term of 14 years, making 42 in all. In the case of books published in more than one volume, or of periodicals published in numbers, or of engravings, photographs, or other articles published with variations, a copyright must be entered for each volume or part of a book, or number of a periodical, or variety as to style, title, or inscription, of any other article. To complete the copyright on a book published serially in a periodical, two copies of each serial part, as well as of the complete work (if published separately), should be deposited.

To secure copyright for a painting, statue, or model, or design intended to be perfected as a work of the fine arts, a definite title and description must accompany the application for copyright, and a mounted photograph of the same, as large as 'cabinet' size, mailed to the librarian of Congress not later than the day of publication of the work or design. The fine arts, for copyright purposes, include only painting and sculpture,

and articles of merely ornamental and decorative art should be sent to the patent office; as subjects for design patents. Copyrights are not granted on trademarks or on names of companies, libraries, or articles, or on an idea or device, or on prints or labels intended to be used for any article of manufacture. If protection for such names or labels is desired, application must be made to the patent office.

Until 1891 copyright could be acquired only by a citizen of, or permanent resident in, the United States. British authors had much reason to complain of this state of the law; and American authors were injured by having to compete with cheap unauthorized reprints of British works. There was at one time an understanding that the American publisher who first placed a British work on the market obtained copyright by courtesy; and considerable sums were paid for 'advance sheets' in order to obtain this advantage, but the 'courtesy of the trade' came to be disregarded. In December 1887, the convention of Berne brought nearly all the States of Europe into copyright relations with one another. This was the most important step ever taken in the history of the world's literary dealings, for it secured an almost universal recognition of the rights of authors. The rights of citizens or subjects of a foreign nation to copyright in the United States extend by presidential proclamations to Great Britain, France, Belgium, Switzerland, Germany, Italy, Spain, Denmark, and Portugal, and Americans can secure copyright in those countries. For this direct arrangements must be made abroad. For an American citizen to secure copyright in Great Britain the title should be entered at Stationers' Hall, London, the fee for which is five shillings sterling, and five shillings additional if a certified copy of entry is required. The work must be published in Great Britain or in her dominions simultaneously with its publication in the United States, and five copies of the publication are required, one for the British Museum and four on demand of the Company of Stationers for four other libraries. Copyright may be secured in France by a foreigner by depositing two copies of the publication at the ministry of the interior at Paris. No fee or entry title required. To secure copyright in Belgium a foreigner may register his work at the department of agriculture, industry and public works at Brussels. In Switzerland, register of title at the department of commerce and industry at Berne is optional, not obligatory; fee, two francs. If registered, deposit of one copy is required. Copyright in Canada is to be registered with the minister of agriculture at Ottawa; fee, $1 for registry and 50 cents for certificate, and the work must be published in Canada and two copies deposited. In Greece the period during which an author can hold a copyright is restricted to 15 years. The Swiss grant copyright during the life of the author or

his heirs during 30 years from the date of publication of his work. In Brazil the author enjoys a copyright for life, and it is extended for 10 years after his death. In Venezuela the copyright endures for the life of the author and 14 years after his death. In Holland and Belgium the copyright lasts during the life of the author and during 20 years after his death. In Germany, Austria, Hungary, and Portugal copyright endures during the life of the author and during 30 years after his death. The duration of copyright in Italy is regulated in a peculiar manner. It endures for the life of the author and 40 years after his death, or for 80 years after the publication of the work, the term of years being divided into two periods of 40 years each. If the author dies within the first period of 40 years the remainder of the term is enjoyed by his heirs or assigns. The second period of 40 years begins at the death of the author, if he has died after the first period of 40 years has elapsed; or if he has died before them, at the end of the first period of 40 years. During the second period any one is at liberty to republish the work on payment to the owner of the copyright of a royalty of 5 per cent on the price, which must be marked on the book. France, Norway, Sweden, and Denmark accord a copyright during the life of the author and 50 years after his death. Russia not only gives copyrights for life and 50 years after death, but also for 10 additional years if an edition of the work is published within five years from the end of the first copyright term. The law of Spain accords a copyright during the life of the author and for 80 years thereafter. Only in Mexico is copyright perpetual, but at the present time an effort is being made to have copyrights perpetual in various countries. Consult Drone, *The Law of Property in Intellectual Production;* Putnam, *The Question of Copyright.*

COPYRIGHT, CANADIAN: The double relation of Canada, as at the same time a self-governing nation, and also a part of the British Empire, produces some slight complications in its copyright law. By the British North America Act of 1865, constituting the Dominion, the power of copyright legislation was assigned to the Federal authority. The Canadian Parliament passed a Domestic Copyright Act in 1875, revised it in 1886, and amended it in 1889 by an act which was suspended by the Imperial Parliament, pending discussion of the protection of British authors. Finally in 1895 a Canadian act satisfactory to both British authors and the Canadian printers and publishers was agreed on and passed. The Imperial Copyright Act of 1842 applies generally to Canada, subject to the present Canadian legislation. The importation of foreign reprints of British copyright works was formerly permitted on payment of a 12½ per cent royalty duty collected through the Canadian Customs, but since this has been dropped from the tariff, it has been held (re

Morang vs. Publishers' Syndicate, 32 Ont. Rep.) that the prohibition of such importation contained in the Imperial Act applies once more to Canada in favor of the properly registered British copyright holder. The point is not however free from dispute.

The difficulties have chiefly arisen from the importation into Canada from the United States of reprints of British works sold at low prices, and which it has been practically almost impossible to restrain. When these were so imported by American publishers under agreement with the British author, the Canadian printer and publisher saw themselves constantly deprived of business which they considered should be theirs, as no reciprocity was permitted them by the United States. Their mouthpiece was the Canadian Copyright Association and their agitation was continuous. The refusal of the United States to enter the Berne Convention was an important incident in the history of the trouble, although more recent United States legislation protects the British author to a certain extent. The Canadian author also has found it necessary to watch copyright legislation and raise some complaints. At present any author domiciled in the Empire, or in any country having an international copyright treaty with the United Kingdom, may obtain copyright in Canada for 28 years (renewable for 14 years by the author, his widow or children) of any book, map, chart, musical composition, or any original painting, drawing, statue, sculpture or photograph, any print or engraving of an original design, or any translation of a literary work; but no exclusive right can be obtained to illustrate a piece of scenery or an object. The work must be printed and published, reprinted and republished or produced or reproduced in Canada. The copyright lapses with the expiration of foreign copyright. British copyrighted works may be copyrighted when printed and published, or reprinted or republished in Canada, and may also be imported notwithstanding Canadian copyright. Works published in separate articles of a periodical may be temporarily copyrighted, but the complete work must also be registered when published. Anonymous works may be registered in the publisher's name. The registration is granted on delivery of three copies of the work at the Department of Agriculture (Copyright Branch), Ottawa, immediately on publication in Canada, and the issued work is to bear copyright notice in due form. An interim copyright may be obtained, but becomes void unless the work is printed in Canada within one month after first publication elsewhere. If not so printed, the applicant is liable to a penalty of $100. All communications are addressed to 'The Minister of Agriculture (Copyright Branch), Ottawa,' from whom copies of the act and regulations may be obtained on request.

Any publication of an original manuscript, without consent of author or proprietor, entrains liability for

damages, unless the work be already printed in Canada or elsewhere. If the copyright edition is out of print the minister may, after a complaint made to the proprietor, and his neglecting to provide a remedy, grant licenses to others to publish, and may fix the royalty.

Foreign magazines and newspapers, containing British copyright works, may be imported, if the publication is with the author's consent, or under the copyright law of the country from which they come. Volumes of collections containing in part literary matter or music copyrighted in Canada, cannot be imported except from the United Kingdom.

COPYRIGHT, INTERNATIONAL, is when nations make mutual arrangements as to copyright. By British acts passed in 1844, 1852, and 1875, the copyright of works published in foreign countries was secured to the authors and their assigns within the British dominions, on complying with certain regulations, the benefit of this act being extended only to countries according a similar protection to British authors. France, Prussia, Italy, Belgium, and other powers concurred at different times in this system of reciprocal copyright; but the subject of international copyright has not as yet been considered settled on a satisfactory footing, and various attempts at a better settlement have been made. In Sept. 1885 an international conference met at Berne, and articles of an International Copyright Union were signed by the representatives of the various powers (Britain, France, Germany, Italy, Belgium, Spain, Switzerland, etc.) in the following year, the main principle of the scheme being that each state should accord to the subjects of the other states the same advantages as it accords its own. To enable this convention to be carried into effect in the British dominions an act was passed in 1886. Works first produced in the colonies are protected under this act; as regards the admission of foreign reprints of British works into the colonies, however, no adequate provision has as yet been made. See COPYRIGHT.

COQUELIN, BENOIT CONSTANT, *kōk-lăn, bĕ-nwä kônstän,* French actor: 1841, Jan. 23: b. Boulogne. He early showed such talent that he was admitted to the Paris Conservatoire in 1859, the following year took the second prize for comedy, and made his début on the stage of the Theâtre Français, 1860, Dec. 7, as Gros-René in the *Amourous Veration.* Later he appeared with great success in *Le mariage de Figaro, Le maladie imaginaire, Le misanthrope, Le barbier de Séville,* and other pieces in the classical repertoire. His versatility was considered remarkable, as he was no less effective in modern plays, and he speedily became a popular favorite. He was elected a sociétaire in the Theâtre Français in 1864, but in 1886 he retired and made an extensive tour abroad. He made his first visit to America in 1888. About the end of 1889 he rejoined the Theâtre Français company as a salaried member and remained with that organization until

1892. In 1893–4 he again appeared in the United States. Upon his return to Paris he formed an engagement with the Renaissance Theatre, which led to a lawsuit with the Comédie Française in which Coquelin was condemned to pay damages. In 1900–01 he visited America again, in company with Sarah Bernhardt, to whose Duke de Reichstadt he played Flambeau in Rostand's *L'Aiglon.* Among the many characters created by M. Coquelin in later years are those of Labussière in *Thermidor,* Cyrano de Bergerac in Rostand's play of that name, and Napoleon in *More than Queen.* Together with his high rank as a comedian M. Coquelin has become celebrated as an author and lecturer, among his publications being *L'Art et le comédien* (1880), which has been translated into German and into English (as *The Actor and his Art*); *Les comédiens, par un comédien* (1882), and *L'Arnolphe de Molière* (1882).

COQUELIN, Ernest Alexandre Honore, *ėr-nā ä-lĕks-ändr ō-nō-rā,* French actor: brother of Benoit Coquelin: 1848, May 16; b. Boulogne. He was educated at the high school of his native city and was for a time in the employ of the Northern Railway, but following in the footsteps of his brother went to Paris in 1864 and entered the Conservatoire, to make a career upon the stage. He was graduated three years later with the first prize in comedy and made his début at the Odéon. In 1868 he became associated with his brother at the Theâtre Français, and continued there until 1875, playing in all the well-known classical comedies. He took an engagement at the Variétiés in 1875, but returned to the Theâtre Français in the following year, shortly after becoming a member of the company. M. Coquelin, Cadet, as he is called, to distinguish him from his greater brother, is the author of numerous monologues, to the success of which he owes most of his reputation, and his rendering of them has gained him great popularity in Paris.

COQUELIN, Jean, *zhŏñ,* French actor: b. 1865, Dec. 1. He is a son of B. C. Coquelin (q.v.), and adopting his father's roles appeared at the Comédie Française for the first time 1890, Nov. 20.

COQUEREL, Athanase Josue, *ä-ta-näz zhō-sü kō-ke-rĕl,* French Protestant clergyman: b. 1820, June 16, Amsterdam; 1875, July 24, d. Fismes, Marne, France. He was a son of A. L. C. Coquerel, and was the author of *Jean Calas et sa famille* (1858); *Libres études* (1867), etc. He was widely known as an eloquent preacher, and was long a leader of the liberal Protestant party in France.

COQUEREL, Charles Augustin, *shärl ô-güs-tăn,* French theologian: 1797, April 17—1851, Feb. 1. He was a brother of A. L. C. Coquerel, and among his writings is *L'Histoire des eglises du desert* (1841).

COQUET, v. *kō-kĕt'* [F. *coqueter,* to strut as a cock among hens—from *coq,* a cock: comp. Gael. *gogaid,* a vain woman—from *gog,* nodding to attract attention—

ĭĭt., a little cock]: to attempt to attract admiration, to trifle in love in order to gratify vanity. COQUET'TING, imp. COQUET'TED, pp. COQUETRY, n. *kō'kĕt-rĭ*, attempts to attract notice or love from vanity. COQUETTE, n. *kō-kĕt'* [F. *coquette*, a prattling or proud gossip]: a vain trifling girl who endeavors to attract admiration and love from vanity, and then rejects her lover for another; a jilt. COQUET'TISH, a. *-tĭsh*, invitingly pretty; affecting the manner of a coquette. COQUET'TISHLY, ad. *-lĭ*.

COQUETTA BARK, n. *kō-kĕt'ta bârk:* fibrous Carthagena bark, from *Cinchona lancifolia*, which grows in New Granada. It contains quinine, much quinidine, also some cinchonine.

COQUILLA NUT, *kō-kwĭl'la nŭt:* fruit of a palm, *Attalea funifera:* see ATTALEA. It now forms an article of export from S. America, being used in the manufacture of buttons and in turnery, as for knobs of walking-sticks, umbrella handles, handles of bell-pulls, etc. It is very hard, susceptible of a good polish, and beautifully mottled with dark and light-brown. The demand for coquilla nuts seems likely to increase; and probably the fruits of some other palms may be found suitable for similar purposes.

COQUIMBO, *kō-kēm'bō:* department in Chili; lat. from 25° 30′ to 31° s., and long. from 69° to 72° w., occupying the entire breadth of the country between Aconcagua on the s. and Atacama on the north. With the exception of the immediate banks of streams, it is parched and barren, being valuable chiefly for its mines of silver and copper. Physically, the region here and there presents galleries of shingle-terraces with organic remains: see CHILI. Pop. (1881) 165,474; (1891) 189,524; (1895) 160,898.

COQUIMBO: city of Chili, cap. of the dept. of C. It is called also La Serena. It stands near the mouth of the C. river. The *port* of C. is on the bay, several miles away, and is one of the best harbors in Chili. In addition to copper and silver, it largely exports chinchilla skins. Pop. of C. (1895) 15,712.

COQUIMBO RIVER: river in Chili, rising in the Andes, entering the Pacific about lat. 29° 55′ s., and long. 71° 25′ west. At its mouth is one of the best harbors in the republic.

COQUIMBO OWL, or BURROWING OWL: see OWL.

COQUITO, *kō'ke-to* (*Jubœa spectabilis*): beautiful Chilian palm, of the same tribe with the cocoa-nut, rising with a naked stem to the height of 40 or 50 ft., and bearing a crown of wide-spreading pinnated leaves. By cutting off the crown, the sap is obtained in great quantity, continuing to flow for months; and when boiled down to the consistence of treacle, becomes a very sweet syrup, and forms, under the name of Palm-honey (*miel de palma*), an article of great importance in the domestic economy of the Chilians.

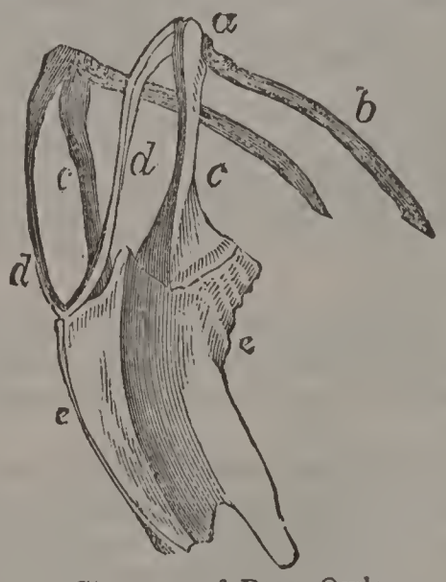
COR, *kŏr* [L.]: a prefix, together; another spelling of CON, which see.

CORA, *kō'râ*, or CORE, *kō'rā*, or CORI, *kō'rē:* town of s. Italy, 30 m. s.e. of Rome; most picturesquely situated on a commanding elevation in the midst of olive plantations, and crowned by the ruins of ancient temples. Two torrents dashing through deep ravines on the e. and w. side of the hill add romance to the situation. The town, divided into an upper and lower part by an olive-grove, is surrounded by walls, chiefly of 15th c. date, and is on the whole well built, clean, and healthy, with a population of 6,000. C. preserves the name, and occupies the site, of one of the oldest cities in Italy. Virgil and Diodorus make it an Alban colony, while Pliny ascribes to it a Pelasgic origin. In any case, it was early one of the most important cities of Latium. The ancient remains—including those of the old walls, a Doric temple called the *Temple of Hercules*, a Corinthian temple to Castor and Pollux, and a fine bridge —are among the most interesting in Italy.

CORA'CIAS: see ROLLER.

CORACLE, n. *kŏr'ă-kl* [W. *curwgl*—from *corwg*, a trunk: Gael. *curachan*, a coracle—from *curach*, a boat of wicker-work]: a fishing-boat among the anc. inhabitants of Wales and Scotland, made of a frame of wicker-work covered with the skin of animals; a boat made by covering a frame of wicker or basket work with leather or oil-cloth, used in Wales and Ireland: see CURRACH.

CORACOID, a. *kŏr'ă-koyd* [Gr. *korax*, a crow; *eidos*, shape]: resembling a crow's beak; in *anat.*, applied to a process of the shoulder-blade, which forms a separate bone in birds and reptiles. In the mammalian skeleton, the



Sternum of Barn Owl:

a, the glenoid or shoulder joint cavity; *b*, the scapula; *c*, *c*, the coracoid bones, articulating at one end with the sternum or breast-bone *e*, and at the other with the scapula *b*, with the clavicle *d*, and with the humerus or great bone of the wing. The union of the two clavicles *d*, *d*, to form the furcula or merry-thought bone, is well shown in this figure.

scapula or blade-bone presents a projecting bony process termed the Coracoid Process, and from the idea that the bones of these parts in all birds, in saurian and chelonian

reptiles, and in the monotremata, correspond anatomically with the comparatively slightly developed coracoid process, they have received the name now universally assigned to them.

The uses of these bones are most obvious in birds. It is obviously necessary that the scapular arch should be very strong in birds, in order to form a solid resisting fulcrum to the powerful movements of the humerus and other wing-bones. The scapula (see *b* in the fig.) is a long, curved, compressed bone, extending along the back on each side of the dorsal vertebræ, imbedded in the muscles to which it gives attachment, while at its fixed extremity it assists in forming the cavity of the shoulder-joint (*a*). The coracoid bone (*c* in fig.) is the great support of the shoulder; for while at one extremity it sustains the wing, at the other it is firmly secured to the sternum by a broad and strong articulation; indeed, it forms the main resistance to the approximation of the humerus to the median plane, and retains it firmly in its lateral position. The scapula and coracoid bone are anchylosed (or united by osseous matter) at their point of union, thus forming collectively the structure popularly known as the side-bone. The clavicles, *d*, *d*, which are conjoined to form the furcula, combine to add to the stability of the whole apparatus.

CORAIS, *ko-ra'is*, Adamantios, called by the French Coray, *ko-rā:* one of the most learned Hellenists of modern times, and a benefactor of his nation: 1748, Apr. 27—1833, Apr. 6; b. Smyrna. His father was a merchant, and he also engaged in mercantile pursuits; but having from earliest youth delighted in the study of ancient and modern languages, he relinquished business, and turned to literature. He fixed his residence in Paris, and there resided till his death. He published editions of many ancient Greek authors, adding notes and prolegomena, in which his patriotic zeal was often very strongly displayed. He translated into modern Greek the work of Beccaria, *Dei Delitti e delle Pene;* and by various translations and other publications, influenced and awakened the minds of his countrymen. When the Grecian war of independence began, C. was too aged to take any active part in it, but by his writings he showed his sympathy with the cause of his country.

CORAL, n. *kŏr'ăl* [F. *corail;* OF. *coral*, coral—from L. *corălĭum;* Gr. *korallĭŏn*, coral: It. *corallo*]: the hard limy substance secreted by the coral zoophyte, and occuring most abundantly in the warmer latitudes of the ocean: Adj. pertaining to. Cor'alla'ceous, a. *-lā'shŭs*, or Cor'alline, a. *-lĭn*, of or like coral. Cor'alline, n. a coral-like substance; a kind of algæ hardened by calcareous deposits resembling coral-moss. Cor'alline, n. *-lĭn*, a brilliant red dye, called also *aurin* or *rosolic acid*. Cor'allif'erous, a. *-lĭf'-ĕr-ŭs* [L. *fero*, I bear]: containing coral. Coral'liform, a. [L. *forma*, a shape]: resembling coral. Cor'alloid, a. *-loyd*, or Cor'alloi'dal, a. *-loy'dăl* [Gr. *korallĭŏn*, and *eidos*, a form]: branching like coral; having the appearance or struct-

ure of coral. Coral-rag, in *geol.*, the upper member of the Oxford or Middle Oolite (q.v.), consisting of continuous beds of petrified corals of variable thickness, interstratified with beds of oolitic limestone. These strata occur in England in the n. districts of Berkshire and Wilts, and again, with the same characteristics, in Yorkshire, while in the intermediate district the whole group disappears. It attains a maximum thickness of 190 ft. The characteristic genera are *Isastræa*, *Thamnastræa*, and *Thecosmilia*. With them are associated the remains of mollusca and echinodermata. Coral-reef, also Coral-island, a chain or ridges of coral in various parts of the ocean, at or above the surface, forming an island. Coralline crag, in *geol.*, the white crag, or the lowest member of the Pliocene.

COR'AL: calcareous secretion or deposit of the Coralligena, a sub-class of Actinozoa (see Zoology: Polypi). This deposit assumes very various and often beautiful forms, according to the differing gemmation of the polyps of the different species. The coral-producing zoophytes are compound animals, which increase by gemmation, young polyp buds springing from the original polyp, sometimes indifferently from any part of its surface, sometimes only from its upper circumference, or from its base, and not separating from it, but remaining in the same spot, even when the original or parent polyp has ceased to exist, and producing buds in their turn. The calcareous deposition begins when the zoophyte is still a simple polyp—owing its existence to oviparous reproduction—adhering to a rock or other substance, to which the calcareous matter becomes affixed, and on which the coral grows or is built up, the hard deposits of former generations forming the base to which those of their progeny are attached. One layer of the calcareous polyp cells of which the greater number of corals are composed, occasionally surrounds another like the concentric circles in the wood of exogenous trees; one layer is sometimes deposited above another; the whole structure sometimes branches like a shrub, spreads like a fan, or assumes the form of a cup, a flower, or a mushroom. Under the common name coral are included many species also, designated madrepores (q.v.), and some have received other names derived from peculiarities of their form and appearance, as Brainstone coral (q.v.), etc. In the greater number of kinds, besides the calcareous plates which form and separate the polyp cells, and which are variously arranged according to the form and structure of the polyps themselves, there is a more solid internal or central calcareous part, formed by the additional deposition of calcareous matter at the bottom of each polyp cell, or from the common living part in which the polyps are united. The calcareous framework is further strengthened by a greater or less mixture of horny animal matter with the pure calcareous substance. This calcareous framework is analogous to the cartilaginous, leathery, or fibrous framework, of many other compound zoophytes, as *Alcyonium* (q.v.), or

Dead Man's Fingers. The polyps of the common RED C. (*Corallium rubrum*) indeed very much resemble those of *Alcyonium;* but the central axis in this and other corals forming the family *Corallidæ* is quite solid, being produced in concentric layers by the living gelatinous substance, which envelops it like the bark of a tree, and from which the polyps project like buds, or, when their tentacula are expanded, like little flowers. In the *Madreporidæ*, the general structure more nearly resembles that of *Alcyonium*. Many of them, however, have the whole calcareous framework covered, as in the *Corallidæ*, by a gelatinous living substance which unites all the polyps. The whole living part soon decomposes and disappears, when the C. is taken out of the water; in some species, almost immediately flowing from the calcareous part as a watery slime.

Coral, showing the Polyps (*Corallium rubrum*).

Corals abound chiefly in the seas of the warmer latitudes, where they form extensive banks at no very great depth, and their various and bright colors present the appearance of submarine flower-gardens. Numerous species are usually combined in the formation of a single C. reef, and respectively occupy different places in it. Corals of the branching genus *Porites* usually occupy the exposed edge of the reef, and with them is associated *Millepora complanata*, a species which forms thick vertical plates, united at different angles by their edges, the outer plates only being tenanted by living polyps. In the stiller water within are many more delicate kinds, and in the quiet sheltered depths, brainstone corals and flower-like forms appear.

The C. of commerce, or common RED C.—so much admired for its fine color, susceptible of a high polish, and much used for ornamental purposes—is obtained chiefly from the Mediterranean, in some parts of which extensive 'coral fisheries' are carried on. It is brought up from considerable depths by means of a sort of grappling apparatus dragged after a boat or boats; the pieces being broken from the bottom by beams of wood which are sunk by weights, and then entangled among hemp. Red C. has a shrub-like branching form, and grows to the height of about one ft., with a thickness like that of the little-finger. Much of the C. of the Mediterranean is exported to India, but Red C. is obtained also in the Red Sea, the Persian Gulf, etc.—BLACK C. (*Antipathes*), the axis of which is rendered still more solid by the greater mixture of horny with calcareous matter, is still more highly prized.—C. was known to the ancients, and was used for ornamental purposes by the Gauls.

COR'AL FLOWER, or COR'AL TREE (*Erythrina*) genus

of trees and shrubs, of the nat. ord. *Leguminosæ*, sub-order *Papilionaceæ;* of which the species, natives of tropical and sub-tropical regions, generally produce long spikes of beautiful flowers of a rich dull crimson or a scarlet color, resembling coral. The leaves have three leaflets. The *standard* of the flower is remarkably long. The C. F. of Brazil (*E. crista galli*) is common in British green-houses. The Indian C. F. (*E. Indica*) is used in the E. Indies for hedges, its stem being covered with thorns. The wood is so light and spongy that it is used for the largest sizes of corks.—*Jatropha multifida*, a very different plant, of the nat. ord. *Euphorbiaceæ*, has also acquired the name of Coral Tree.

COR'AL ISLANDS: ridges of coral at and above the surface of the ocean. They are most abundant in the tropical and sub-tropical parts of the Pacific Ocean. The formation of coral goes on, in favorable circumstances, with wonderful rapidity, for masses of coral have been found to increase in height several ft. in a few months; and a channel cut in the reef surrounding a coral island, to permit the passage of a schooner, has been choked up with coral in ten years. It was at one time supposed that the coral polyps began their labors at the bottom of the ocean, and reared their pile from its greatest depths; but it has been ascertained that none of them live at depths of more than 20 or 30 fathoms, and most of them are inhabitants of much shallower water. It appears, therefore, that the foundation of their still marvellous structures must be on

rocks that do not reach the surface, probably in most cases volcanic rocks similar to those which, being further upheaved, form the volcanic and often mountainous islands of Polynesia. Around these volcanic islands, which—although some of them are the largest islands of the Pacific Ocean—are far fewer in number than its C. I., a fringing reef of coral is often found immediately attached to the land; while in many other cases, the reef surrounds the island, the intervening space—of irregular, but nowhere of great width—forming a lagoon or channel of still water, protected by the reef from winds and waves. According to a theory proposed by Darwin (but disputed by Semper and Murray), this latter kind of reef is formed from a reef of the former or merely fringing kind, by the gradual sub

sidence of the rocky basis carrying down the fringe of coral to a greater depth; while the greatest activity of life is shown by polyps of the kinds most productive of large masses of coral in the outer parts most exposed to the waves. In this manner also Darwin accounts for the formation of true C. I., or *atolls*, which consist merely of a narrow reef of coral surrounding a central lagoon; and very often of a narrow reef—perhaps half a mile in breadth—clothed with luxuriant vegetation, bordered by a narrow beach of snowy whiteness, and forming an arc, the convexity of which is toward the prevailing wind, while a straight line of reef not generally rising above the reach of the tide, forms the chord of the arc. There is generally a navigable passage through the reef into the inclosed lagoon, the waters of which are still and beautifully transparent, and the depth of water close to the precipitous sides of the reef is almost always very great. The passages through the reefs surrounding the larger volcanic islands are often opposite the mouths of streams; but even where this is not the case, there is a strong current in these channels from the flux and reflux of the tides. Islets bearing a few cocoa-nut trees often appear at intervals in the line of a low coral reef, and generally mark the sides of passages through it. When a reef has reached the surface of the water, sand, shells, fragments of coral, and other substances, begin to accumulate, and cocoa-nut trees often grow where the waves still wash their roots. Further accumulations from the ocean, with decayed leaves, stems, etc., gradually convert the reef into fertile land. Many C. I., of considerable extent and population, are nowhere more than a few feet above the level of the sea. Sometimes a volcanic upheaval seems to have taken place after the coral was formed, and this is supposed to have been the origin of the islands—comparatively few in number—called *Crystal Islands*, composed of coral rock, more or less modified by the action of air, water, and other agents. Islands of this class sometimes rise to an elevation of 500 ft., and often exhibit precipitous cliffs, and contain extensive caverns. They do not exhibit, however, the picturesque beauty of the volcanic islands, nor the soft and gentle loveliness which often characterizes the true C. I.

Coral reefs sometimes include within their circuit more islands than one (as in cut). Reefs also sometimes extend to a great length in a straight line, generally parallel to a coast. There is such a reef on the e. coast of Australia, extending not less than 350 m., without being broken by a channel. For the interesting theory of Mr. Murray, opposed to Darwin's, and founded on the *Challenger* observations, see a paper read by him in the Royal Soc. of Edinburgh in 1880: see also POLYNESIA.

COR'ALLINE (*Corallina* and *Corallinaceæ*): genus and family of marine *Algæ*, of the sub order *Ceramiaceæ*, remarkable for rigidity, which is mostly owing to a calcareous incrustation. When the calcareous matter is removed by a weak acid, the resemblance to other *Ceramiaceæ* becomes very apparent. The common C. (*C. officinalis*), extremely

abundant on the British coasts, at first appears as a thin, round, shelly, purplish patch, on a smooth rock the shell of a mollusk, or the frond of a see-weed. It gradually enlarges, and usually sends up a frond of jointed branching filaments, in a bushy tuft, an object of great beauty in the rock-pools. Although, as its name imports, this C. was formerly *officinal,* it has no medicinal virtues. Some of the corallines expand into leafy lobes, usually fan-shaped. Corallines are most abundant and beautiful in tropical seas.

The name C. is often popularly given to zoophytes of the class *Anthozoa*, and genera *Sertularia, Thuiarea, Antennularia, Plumularia, Laomedea, Campanularia,* etc., having branching polypidoms and hydraform polyps.

CORALLUM, n. *kŏ-răl'lŭm* [L. *corăllĭum,* red coral. It. *corallo*]: the hard structure deposited in, or by, the tissues of an actinozoon—commonly called *coral.* CORALLITE, n. *kŏr'ăl-līt* [Gr. *lithos,* a stone]: the corallum or coral secreted by an actinozoon, which consists of a single polyp; a mineral substance in the form of a coral. COR'ALLIG'ENOUS, a. *-lĭj'ĕ-nŭs* [L. *geno,* I produce]: producing a corallum or coral.

COR'AL SEA (so called from the substance of its numerous reefs) that section of the Pacific between Australia on the w. and the New Hebrides on the east. Its general depth must be very considerable, for soundings of 2,150 fathoms, or nearly 2½ m., have been obtained in lat. 13° s., and long. 162° east.

CORAM, *ko'ram,* THOMAS: 1668–1751, Mar. 29; b. England: philanthropist. He followed the sea in early life, first as a common sailor, afterward as a capt. of a merchantman; removed to Taunton, Mass., and was there employed several years prior to 1703 in boat-building and farming; returned to England and applied himself to a number of charitable works, the most prominent of which was the establishment of a hospital for foundlings in London. This institution, erected in Holten Garden at his own expense, was opened 1740, Oct. 17. He was subsequently engaged in aiding English settlements in Nova Scotia and the state of Ga.; secured an act of parliament providing a bounty on naval stores of American production, and in his last days formulated a scheme for the education of Indian children. He spent all his fortune in benevolence, and was sustained in his old age by a popular subscription annuity.

CORANACH, n. *kŏr'ă-năch,* or COR'ONACH, n. *-ō năch* [Gael. and Ir. *coronach*—from *cron,* time. comp. Gr. *chrŏnos,* time (see CROON)]: a funeral dirge, formerly in use among the Irish and Scottish Celts. The word, spelt also *Cronach,* is by some thought to be derived from the Gaelic *cornhrànaich,* a crying together. It sometimes denotes a sort of war-cry. 'The cries (coranich) are called by the Irish the Ulagohne and Hululu, two words extremely expressive of the sound uttered on funereal occasions; and being of Celtic stock, etymologists would swear to be the origin of the *ololugon* of the Greeks, and *ululatus* of the Latins.'—Pennant's *Tour.*

The C. seems identical with the Irish *caóine,* generally

written and pronounced *keen*, a dirge for the dead, 'according to certain loud and mournful notes and verses,' wherein the pedigree, property, the good and great deeds of the deceased, and the manner of his death are recounted, in order to excite sorrow or revenge in the hearers, and to show them the loss they have sustained.

The word, in one or other of its forms, occurs in the writings of many of the ancient Scottish authors:

'Cryand for you the cairfull corrinoch.'
Sir D. Lindsay.

'Cryand the corynoch on hie.'
Battle of Harlaw.

'Be he the correnoch had done shout.'
Dunbar.

The Coranach has long since fallen into disuse among the Highlanders. The funeral lament performed on the bagpipes, which may be considered as an instrumental Coranach, lingered on till the latter half of the 18th century.

For specimens of the coranach, see Sir Walter Scott's *Lady of the Lake*, and accompanying notes; Crofton Croker's *Researches in the South of Ireland;* and *Blackwood's Magazine*, vols. xiii and xxiii.

CORANDAGOS, *kō-rân-dâ'gōs* ISLANDS, Philippines, a group of islands lying off the northeastern coast of Palawan. The group consists of two islands, Corandagas and Dalangamen, and three islets. The inhabitants, of Malayan race, are mostly engaged in fishing and in the search for edible birds' nests. Pop. about 300.

COR ANGLAIS, *kawr ang-glā':* wind-instrument of the reed species, the body of which is bent in the form of part of a circle. It is just a large oboe, and played on by oboe-players. Its compass is from F, fourth line in the bass, to B flat above the treble staff. Music for this instrument is written a fifth above the real tones.

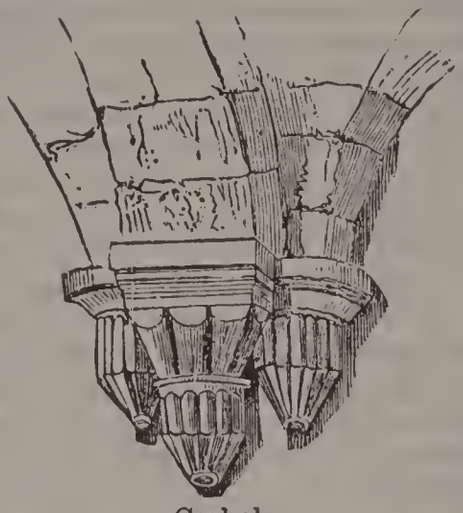
CORAY: see CORAIS, ADAMANTIOS.

CORBAN, n. *kŏr'băn* [Heb. *korban;* Ar. *qurban*, offering sacrifice]: among the *anc. Jews*, a living offering or sacrifice; in later times, an offering of any kind; an alms-basket; a gift; an alms.

CORBEIL, n. *kŏr'bĕl* [F. *corbeille*, a little basket—from mid. L. *corbicŭla*—from L. *corbŭla*, a little basket: It. *corbello*]: a little basket filled with earth, used in sieges; sculpture-work representing a basket with flowers and fruit.

CORBEL and CORBEIL, n. *kŏr'bĕl* [OF. *corbel*, a little basket—from mid. L. *corbella*—from L. *corbis*, a basket (see CORBEIL)]: a piece of stone, wood, or iron projecting from a wall for giving support to any mass, sometimes carved as a head or in the form of a basket; a niche in a wall for an image or statue; the base of a Corinthian column, so called from its resemblance to a basket: V. to support on corbels; to furnish with corbels. COR'BELLING, imp. COR'BELLED, pp.-*bĕld.*—corbel in *architecture*, adhering originally to its etymological meaning, signified an ornament in the form of a basket, like those sometimes set on the heads of caryatides. In Gothic architecture, to which it is

now almost peculiar, it is applied to any kind of ornamented projection used for supporting pillars or other superincumbent weights. Here also its form probably



Corbel:
Kirkstall Abbey.

was at first that of a basket projecting from the wall, in which the end of the pillar was placed, and on which it rested. Latterly, the more ordinary form was that of a head, with the face looking outwards or downwards. In

Corbel:
Duston, Northamptonshire.

this form it is found in all the styles. A recumbent animal, again, is sometimes placed under the pillar, and there are other forms in great variety. When any construction is carried out, so as to rest on corbels, and to project beyond the face of a wall, it is said to be *corbelled out:* see BRACKET: CANTILEVER: CONSOLE.

COR'BIE-STEPS, or CROW'-STEPS, in Architecture: the succession of steps with which the gables of old houses are commonly ornamented in Scotland. The fashion, like most other peculiarities of Scottish architecture, was no doubt borrowed, as was the term, from France. In the

domestic buildings of Edinburgh, it was most prevalent 1620–40. The notion of course, was that the steps were for the use of the crows. This gable ornament is met with in Flanders, Holland, and all over Germany.

CORBIN, Henry Clark, American soldier: b. Clermont county, Ohio, 1842, Sep. 15. He was educated in the common schools, studied law, and entered the Union army as second lieutenant in the 83d Ohio Volunteer Infantry 1862, July 28; but before the organization was completed he was assigned to the 79th Ohio Volunteer Infantry, serving therein as second and first lieutenant, respectively, until 1863, Nov. 14, when he was appointed major of the 14th U. S. Colored Infantry. In the following year 1864, Mar. 4, he was promoted to lieutenant-colonel, and 1865, Sep. 23, made colonel of the 14th U. S. Colored Infantry. He was honorably discharged from the volunteer service 1866, Mar. 26, with the brevet of brigadier-general. In 1866, he was commissioned (1866, May 11) second lieutenant in the regular army. He was appointed to a captaincy of the line 1866, Dec. 31, and from that year to 1876 he was continually in command of his company on the western frontier in campaigns against hostile Indians.

He was appointed to the adjutant-general's department 1880, June 16, and served therein nine years in the grade of major, seven years in the grade of lieutenant-colonel, and two years in the grade of colonel; and was, when appointed brigadier-general and adjutant-general of the army 1898, Feb. 25, the senior in the corps; having served on the staffs of Gens. Hunt, Schofield, Terry, Crook, Miles (with whom be participated in the Sioux Indian campaign), McCook, Ruger, Merritt, and in 1891 conducted a successful campaign against the Moqui Indians in Arizona Territory.

During the Spanish-American war, in addition to his duties as adjutant-general of the army, he superintended the organization of 250,000 soldiers, and within six months the muster-out of 100,000. Subsequently 35,000 additional volunteer forces were mustered, equipped, and made effective for the Philippine service, and they in turn disbanded—the regular army having been increased during this period to three-fold its former strength. In recognition of his services and of the part which he took in the war, congress conferred upon him the rank of major-general. He has commanded the Philippine division since 1904, Oct. 1.

CORBIS, n. *kor'bĭs* [L. *corbis*, a basket]: genus of conchiferous mollusks, family *Lucinidæ*.

CORBY, or Corbie, n. *kŏr'bĭ* [F. *corbeau*, a raven, a corbie—from L. *corvus*, a raven]: in *Scot.*, also in *heraldry*, a raven: see Corbie-steps.

COR CAR'OLI: see Constellation.

CORCHORUS, *kawr'ko-rŭs:* genus of plants of the nat. ord. *Tiliceæ*, having five sepals, five petals, numerous stamens, and a capsule; and containing a number of species, both shrubby and herbaceous, natives of warm parts

of the globe. *C. olitorius* is widely diffused in tropical countries, and is supposed to be a native of Asia, Africa, and America. It is an annual, with a smooth, more or less branching stem; varying in height from two to fourteen ft. or upward, according to soil and climate. It has smooth, stalked, alternate, oval, or ovatolanceolate leaves, and small yellow flowers, solitary or in pairs on foot-stalks. It is much used as a pot-herb, and is called JEWS' MALLOW, from being cultivated by Jews in Syria and other parts of the East. It is more valuable for the fibre of its inner bark, as is also *C. capsularis*, a species very similar, but distinguished by the want of transverse partitions in its capsule. Both are cultivated in India, yielding the greater part of the JUTE (q.v.) of commerce, and of the fibre employed in making *Gunny Bags* (q.v.). *C. capsularis*, extensively cultivated in China, is sometimes called CHINESE HEMP.

The Japanese shrub, now very common in Britain, and still generally known as *C. Japonicus*, was ranked in this genus when botanists were imperfectly acquainted with it, but belongs to the genus *Kerria*, of the nat. ord. *Rosaceæ*.

CORCORAN, *kor'ko-ran*, WILLIAM WILSON: 1798, Dec. 27—1888, Feb. 24; b. Georgetown, D. C.: banker and philanthropist. He was educated in private schools and in Georgetown College; became associated with two brothers in a combination of the dry-goods trade and the wholesale auction and commission business 1815; was prosperous till the stringency of 1823 compelled suspension; had charge of the real estate of the U. S. Bank and the Bank of Columbia in the Dist., 1828–36, and established himself as a banker in Washington 1837. In 1840, he took George W. Riggs into partnership. During the Mexican war, he took $12,000,000 of the 6 per cent. loan issued by the U. S. govt., and successfully negotiated their sale in London. His commissions were the basis of his subsequent great wealth. In 1854, he retired from the banking business, and spent the remainder of his life in caring for numerous financial interests and in works of charity and public benefaction. He bought and presented to his native city the beautiful cemetery of Oak Hill 1847; built, furnished, endowed, and presented the now famous gallery of art bearing his name to the city of Washington 1857; founded there, in memory of his wife and daughter, the Louise Home for Indigent Women 1870; had the remains of John Howard Payne, author of 'Home, Sweet Home,' brought from Tunis and re-interred in Washington, and erected a suitable monument over them; and spent large sums in a variety of minor good deeds. It is believed that his public benefactions and private charities amounted to upward of $5,000,000.

CORCULE, n. *kŏr'kūl*, or COR'CLE, *kor'kl* [L. *corcŭlum*, a dim. from *cor*, the heart]: in *bot.*, the heart of a seed, or the embryo.

CORCYRA: see CORFU.

CORD, n. *kawrd* [F. *corde*, a cord—from mid. L. *corda*,

a cord—from L. *chorda;* Gr. *chordē*, a string, gut: It. *corda*]: a string or small rope having the strands or plies well twisted; a quantity of wood (128 cubic feet) formerly measured by a cord; that by which persons are caught, held, or drawn; a musical string: V. to bind; to fasten with cords or rope. CORDING, imp. *kŏr′dĭng.* COR′DED, pp.: ADJ. made of cords. COR′DAGE, n. *-aāj* [F.]: cord and ropes taken together; seamen's name for the running rigging of a ship, as distinguished from the standing rigging; name given also to the store of rope in reserve: see RIGGING: ROPE.

CORDATE, *kŏr′dāt* [L. *cordātus*, having a heart—from *cor*, the heart]: in *bot.*, having the form of a heart; heart-shaped. COR′DATELY, ad. *-lĭ.*

CORDAY D'ARMANS, *kor-dā′ dâr-mŏng′*, MARIE ANNE CHARLOTTE, known as CHARLOTTE CORDAY: 1768–1793, July 17; b. St. Saturnin, dept. of Orne, France. Though descended from a noble family, she early imbibed revolutionary principles, but was horrified at the monstrosities of the Jacobins; and her hatred of their acts was intensified by converse with a party of proscribed Girondists, who had fled to Normandy. She resolved to rid her country of one of the principals of the Jacobin faction, and with that view travelled to Paris. Whether to slay Robespierre or Marat, was an open question with her; but while she was debating the matter with herself, a demand of the latter for one or two hundred thousand more victims for the guillotine, marked him out for her weapon. Twice she sought admission to Marat unsuccessfully, but on a third occasion (1793, July 13), was admitted on the plea that she had important news from Caen to communicate. She found Marat in his bath, who, to some statement she made, declared that the Girondists who had fled to Normandy, some of whom where her own friends, would be guillotined in a few days. She no longer hesitated, but plunged her dagger into the monster's heart, who expired with a single groan. She was at once arrested, and brought before the Revolutionary Tribunal, where she boldly avowed and justified her act. She was of course condemned to the guillotine, and the sentence was carried into effect four days after Marat's death. Her beauty added greatly to the interest which her sanguinary heroism inspired.

CORDELIER, n. *kŏr′dĕ-lēr′* [F. *cordelier*—from L. *chorda*, a gut, a rope]: a Franciscan friar of the strictest branch, so called from wearing a girdle of knotted cord. At one period, the Cordeliers had no less than 284 convents for men and 123 for women.—During the Revolution, the name was applied to the members of a political club which assembled in the chapel of a Franciscan monastery, and exercised (chiefly in Paris, however) great influence on the progress of the revolution. This club, instituted 1790, had for leaders men of various opinions, including Danton, Hébert, Camille Desmoulins, and Marat. The Cordeliers

were generally opposed to the Jacobins (q.v.); but it may be asserted that in these two clubs all the great popular movements of the revolution had their origin. In the session of the Cordeliers, 1793, May 22, the insurrection which marked the close of the Reign of Terror was plotted. While the club was at the height of its influence, Camille Desmoulins commenced to issue his popular journal, *Le Vieux Cordelier.* Soon after the fall of Danton, the Cordelier Club lost its influence, and was an insignificant affair when it was closed by the Convention.

CORD-GRASS (*Spartina*): genus of grasses having compound spikes, the spikelets arranged on one side; and having only one perfect floret, and very unequal glumes. One species, *S. stricta,* found in muddy salt-marshes on the e. and s.e. coasts of England, though remarkable for its extreme stiffness and rigidity of habit, is used for making ropes, on account of the toughness of its fibre.

CORDIACEÆ, *kawr-dĭ-ā′sē-ē:* natural order of exogenous plants, closely allied to *Borragineæ,* from which it differs chiefly in its drupaceous 4–8-celled fruit. It consists of trees with rough leaves, natives chiefly of the tropics, though some are found in cool parts of S. America. The fruits called Sebesten (q.v.), or Sebesten Plum, belong to this order, and to the genus *Cordia;* which contains also some valuable timber-trees, particularly the Spanish Elm, Prince Wood, or *Bois de Chypre* of the W. Indies (*Cordiaceæ Gerasacanthus*). It is a dark-brown wood, faintly striped, tough, elastic, and fine grained.

CORDIAL, a. *kŏr′dĭ-ăl* [F. *cordial*—from mid. L. *cordĭālis*—from L. *cor,* the heart]: proceeding from the heart, sincere; invigorating: N. anything that revives the spirits, any medicine that increases the strength or raises the spirits: a liquor containing an extract of some vegetable substance and some spirit, and sweetened. Cor′dially, ad. *-lĭ,* heartily; sincerely. Cor′dial′ity, n. *-ĭ-tĭ,* sincerity; freedom from hypocrisy; warmth of manner.—Syn. of 'cordial, a': hearty; sincere; frank; candid; open; ingenuous; warm; heartfelt; affectionate; cheering.

CORDICEPS, or Cordyceps, n. *kor′dĭ-sĕps* [L. *cor* (gen. *cordis*), the heart; *ceps,* heads, a contraction of *capites,* as *biceps* is of *bicapites* (?)]: genus of ascomycetous fungi (*Sphæriacei*). Some species grow upon decaying leaves and branches on plants affected by ergot, others on living insects. A wasp in the West Indies is thus attacked, and the caterpillar of a New Zealand Ghost-moth (*Hepialus*).

CORDIFORM, a. *kŏr′dĭ-fawrm* [L. *cordem,* the heart; *forma,* a shape]: heart-shaped.

CORDILLERAS, *kawr-dĭl′lėr-as* [so in England and the United States; Spanish *Cordille′ra,* chain]: in Spanish America, a chain of mountains. The Cordilleras of S. America are the Andes (q.v.). Those of Central America extend from the commencement of the Isthmus of Darien to the n. of Mexico and California, and s. of California,

spread themselves, to speak generally, from sea to sea, presenting many diversities, and occupying the states of New Granada, Costa Rica, Nicaragua, Honduras, San Salvador, Guatemala, the Mexican Confederation and New Mexico. They gradually increase in elevation from the Isthmus of Panama, where at one point they are only 260 ft. high, until, in Mexico, they reach a height of more than 17,000 ft., and form magnificent plateaus.

CORDITE, a smokeless powder employed by the English government. It was invented in 1889 by Sir Frederick Abel and Prof. James Dewar, and consists of a mixture of nitro-glycerine 58 parts, nitrocellulose 37, vaseline 5. The nitrocellulose is a mixture of various cellulose nitrates, insoluble and soluble. It is made by intimately mixing the ingredients in a mechanical kneading-machine with the aid of acetone, by which the whole is converted into a gelatinous mass which is then squirted into cords by means of a 'stuff press,' a machine similar to those used in forming macaroni. The cords are heated in drying-houses to drive off the acetone, leaving them in the form of an amber-colored, translucent, flexible mass. Cordite is made up into charges by reeling the cords on bobbins, and then spinning these strands into larger cords, thus obtaining the desired length, volume, and weight.

CORDON, n. *kawr'dŏng* [Sp. and F. *cordon*—from L. *chorda*, a string or rope]: cords or strings with tassels as a mark or badge of honor; a band; a wreath; a row of jutting stones before a rampart; a series of military posts; in military operations, is a line of sentries within sight of one another, inclosing or guarding any particular space of ground, to prevent the passage of persons other than those belonging to the army.

CORDON BLEU, *kawr'dong blė:* knight of the ancient French order of the Holy Ghost, at one time the most aristocratic order in the kingdom, whose decoration was attached to a blue ribbon or baldric. The knights frequently met in club form, and were noted for their excellent dinners, whence the term came to be applied to a cook of superior skill

CORDON GRAND, *kawr'dong grŏng:* term applied to a member of any grade of the French Legion of Honor, because the cross of the order is always suspended from a broad ribbon.

COR'DOVA, or Cor'doba: city of Spain, cap. of the province of Cordova; in the midst of olives and palm-trees on the Guadalquivir, here crossed by a stone bridge of 16 arches, constructed by the Moors, lat. 37° 52′ n., long. 4° 49′ w. Its old Moorish walls and convent-crowned hill in the background give it quite an oriental aspect; but its beauty, like most oriental beauty is merely external; inside, its streets are narrow, dark, and dirty, with a general appearance of decay. Many gardens are inclosed within the walls. Among the principal buildings is the cathedral, formerly a Mohammedan mosque, an immense structure

dating from the 8th c., and generally regarded as the finest type of a Moslem temple in Europe. Internally, its columns, composed of various-colored marble, jasper, and porphyry, form a perfect grove, there being still some 850 remaining, though at one time there were about half as many more. The bishop's palace, an old residence of the Moorish kings now used as stables, and several of the churches and convents, are also noteworthy. Cordova was at one time celebrated for its manufacture of cordovan (q.v.), but that has now greatly declined. Its silversmiths and filigree workers have still a good reputation; and there are manufactures of paper, silken fabrics, hats, etc. Its inhabitants are proud, above even the pride of Spaniards. Cordova is a very ancient place, having been founded by the Romans as Corduba, B.C. 152. Cæsar, B.C. 45, put 22,000 of its inhabitants to death for having sided with Pompey. Taken by the Goths in the 6th c., it soon afterward fell into the hands of the Moors, and became the cap. of the Moorish empire in Spain. From the 9th c. to the 12th c., it was one of the greatest centres of commerce in the world, and is said to have contained a million inhabitants. It was taken by Ferdinand III. of Castile, 1236, and never afterward regained its prosperity. In modern times Cordova was taken and plundered by the French under Dupont, 1808. Cordova is the birthplace of the two Senecas, the poet Lucan, and the astronomer Averroes. Pop. (1900) 54,694.

CORDOVA: state of the Argentine Republic, near its centre; abt. 54,000 sq. m.: populated chiefly in its w. section. Cattle, sheep, and goats are numerous; and the soil is much fitter for maize and fruits than for wheat. The surface is mostly mountainous; and the ranges, which here and there are 2,500 ft. above the sea, are interspersed with barren flats of stone and sand. Pop. (1900) 419,072.

COR'DOVA: capital of a state of the same name in the Argentine Republic (q.v.), on the Rio Primero, tributary of the Parana, near the centre of the state. It was founded 1573, and is an important commercial and ecclesiastical city. It has a railway to the port of Rosario on the Parana. Pop. (1901) 50,000.

CORDOVAN, n. *kŏr'dō-văn*, or CORDWAIN, *kŏrd'wān* [OF. *cordouanier*, one who works with *cordovan* or *cordouan* leather—from the Sp. town *Cordova*, where first made by the Moors]: Spanish leather prepared from goatskins. The best cordovan now comes from the Levant. It is used in bookbinding, and in the finer kinds of boots and shoes. CORDWAINER, n. *kŏrd'wān-ėr*, or CORDINER, n. *kŏr'dĭ-nėr*, a shoemaker.

CORDUROY, n. *kŏr'dû-roy'* [F. *corde du roi*, cord of the king]: a thick cotton stuff corded or ribbed. CORDUROY-ROAD, a road formed of logs laid transversely and in contact. It is used as a mud bridge in swampy places.

CORDYLINE, n. *kor-dĭ-lī'nē* [Gr. *kordulē*, a club or cudgel; suf. *inē*]: genus of *Liliaceæ*, tribe *Asparageæ*.

Cordyline Ti, called also *Dracæna terminalis*, is eaten in the Sandwich Islands: see TI.

CORDYLOPHORA, n. *kor-dī-lŏf'ĕr-a* [Gr. *kordulē*, a club; *phoreō*, I bear]: genus of hydroid polyps, family *Clavidæ*. *Cordylophora lacustris* is the only compound polyp known to occur in fresh water, being found in the dock of the Grand canal, Dublin.

CORE, n. *kōr* [L. *cor*, the heart: F. *cœur;* OF. *cor*, the heart]: the inner part or heart of anything, as of fruit; among *founders*, the centre part of a mold, meant to keep hollow any casting in metal. CORED, a. *kōrd*, in the *herring fishery*, applied to fish gutted, salted, and ready for drying.

COREA: see KOREA.

CORELLI, MARIE, English novelist: b. Italy 1864. In infancy she was adopted by Charles Mackay, the poet. She was educated in London, and on beginning her literary career adopted as a pen name that which subsequently became her legal name. She has published· *A Romance of Two Worlds* (1886); *Vendetta* (1886); *Thelma* (1887); *Ardath, the Story of a Dead Self* (1889); *Wormwood; The Soul of Lilith* (1892); *Barabbas* (1893); *The Silence of the Maharajah* (1895); *The Sorrows of Satan* (1895); *Cameos* (1896); *The Mighty Atom* (1896); *The Murder of Delicia* (1896); *Ziska* (1897); *Jane* (1897); *The Master Christian* (1900); *Boy* (1900); *Temporal Power* (1902); *God's Good Man* (1904).

COREOP'SIS: herbaceous plant, of the nat. ord. *Compositæ;* having yellow flowers with a purple centre.

CORFE CASTLE, *kawr'fĭ kăs'l:* village in the middle of Purbeck isle or peninsula, in the south of Dorsetshire, England, 24 m. s.s.e. of Dorchester. In the vicinity are stone and marble quarries, and clay-works for the potteries. A castle, giving its name to the village, stands on a neighboring hill. It seems to have been founded in the 10th c., and was long one of the strongest fortresses in the kingdom. Here King Edward the martyr was murdered by his step-mother, Elfrida, about 980, and King John, during his disputes with his barons, kept his regalia here for safety. Here also, 1642, Lady Bankes defended the castle for six weeks against Charles I It was dismantled by Fairfax 1645. Pop. of parish 2,000.

CORFU, *kawr-fö'* or *kawr'fū:* most northerly of the Ionian Islands (q.v.); lat. 38° 40′—39° 40′ n. long. 19° 10′—20° e. It has a length of about 38 m., breadth varying from 3 to 20 m.; 427 sq. m. Pop. (1896) 124,578. Like the rest of the Ionian Islands it is mountainous, and the mountains are generally naked and dry, the highest summit, Pandokrátora, being 2,997 ft. above the level of the sea. The valleys, however, are very fertile, and yield olive-oil, wine, honey, oranges, figs, etc. Salt also is produced. The climate is generally mild and healthful.

The ancient name of the island of C. was *Corcyra.* It is said to have been occupied first by the Phæacians, and then by theLiburnians; but the accounts of it are somewhat mythical until its settlement by the Corinthians about B.C. 734, and through its commerce it soon acquired a considerable importance. It soon quarrelled with the mother-country, and after many vicissitudes of fortune, passed under the dominion of the Romans about B.C. 229.

CORFU: principal town of the island of C.; underwent great improvements during the British protectorate, and is copiously supplied with water. It is on an elevation, has some good streets and a fine esplanade. The town has considerable trade, is the seat of an abp. of the Greek Church, and of a Latin bishop. The principal institutions are the penitentiary, the lunatic asylum, the infirmary, foundling hospital, etc. The University, founded by Lord Guilford 1823, now represented by a lyceum, was suppressed when (1864) the Ionian Islands were incorporated with the kingdom of Greece. At the incorporation it was stipulated that Corfu and Paxo were to enjoy perpetual neutrality. The language spoken is considered the softest of the modern Greek dialects. Pop. abt. 17,000.

CORIACEOUS, a. *kō′rĭ-ā′shŭs* [L. *corĭum;* Gr. *chorĭŏn,* skin, hide: It. *corio:* F. *cuir*]: consisting of or resembling leather; tough. CORIUM, n. *kō′rĭ-ŭm,* the true skin or dermis lying beneath the cuticle.

CORIANDER, n. *kŏr′ĭ-ăn′dẽr* [F. *coriandre*—from L. *corian′drum:* It *coriandro*], (*Coriandrum sativum*): annual plant of the nat. ord. *Umbelliferæ,* with branching stem, 1–2 ft. high, the lower leaves bipinnate, the upper leaves more compound, and globose fruit. It is a native of the south of Europe and of the east, and has long been cultivated for its fruit, and has thus become naturalized in some parts of England, although its fruit (*C. seed*) is much less used in Britain than in Germany, and some other European countries. The whole plant, when fresh, has a very offensive smell; but the ripe and perfectly dry fruit has an agreeable aromatic smell and a sweetish aromatic taste. It is used in medicine as a carminative, and as a corrective of certain purgatives; also in domestic economy as an aromatic, being very often mixed with bread in the north of Europe; spirituous liquors are flavored with it; and confectioners cover it with sugar, to make a well-known comfit. In the south of England, it is common to sow C. and caraway together, the C. yielding a crop in the first year, and in years following. C. delights in a rich soil, and is much cultivated and used in India.

CORIGLIANO, *kō-rēl-yâ′nō:* town of Italy, province of Cosenza, about 4 m. from the Gulf of Taranto, beautifully situated on a hill, round which it is built in the form of an amphitheatre, a fine old castle crowning the summit. The base of the eminence is clad with lemon and orange groves, amid which rise some elegant villas; the whole rendering C. one of the most agreeable places in the Calabrias. It

has extensive licorice manufactories, and a trade in wine and fruits. Pop. 12,271.

CORINGA, *ko-rĭng'gâ:* maritime town in the collectorate of Godavery and province of Madras; on the s. side of the estuary of a river of its own name, one of the branches of the Godavery. Its harbor is breasted by a bar, which at spring-tide shows a depth of 12 or 14 ft. Besides having considerable general trade, it is the best place on the coast for the building and repairing of small vessels. It has been twice destroyed by inundations of the sea. In 1787, May, during the n.e. monsoon, the tide overwhelmed the city and the adjacent country, drowning about 15,000 people; and again, 1832, a similar deluge occurred, leaving behind it, besides the more ordinary traces of its power, several ships lying high and dry in fields in the neighborhood. Pop. 4,397.

CORINNA, *ko-rĭn'na:* Greek lyric poetess, abt. B.C. 500; famous alike for beauty and genius; b. at Tanagra, in Bœotia. The date of her birth is not known. She lived principally at Thebes, and hence is sometimes called a Theban. Ælian states that on five different occasions she vanquished her contemporary, Pindar, in a poetic contest; but Pausanias alludes to only *one* victory of hers. Her townsmen showed their appreciation of her genius by placing a statue of her in their gymnasium. She was surnamed *Muia* ('the Fly'), probably on account of the tenderness and softness of her poems. Of her numerous poems, which were composed in the Æolic dialect, only a few fragments remain, published by Bergk, in his *Lyrici Poetæ Gruci* (Leip. 1843). Mme. de Staël's C. was an Ital. improvisatrice.

CORINTH, *kŏ'rinth* (originally called *Ephyre*): famous city of antiquity, on the isthmus connecting the northern division of Greece, or Hellas proper, with the Peloponnesus. Its citadel was the Acrocorinthus, an isolated hill 1886 ft. high, separated from the Oneian range on the n. of the isthmus by a ravine, and forming, in the opinion of Colonel Mure, the most gigantic natural citadel in Europe; neither the Acropolis of Athens, nor the fortress of Gibraltar being able even remotely to compete with it. At the n. foot of this hill lay the city, on a broad level rock nearly 200 ft. above the level of the isthmus. It was probably founded by the Phœnicians, who had various settlements on the Grecian coast, and who could hardly have failed to notice the extraordinary maritime advantages of its situation. According to its legendary history, however, it was founded by Sisyphus, the Æolian, about B.C. 1350. It was then conquered by the Heracleidæ, who ruled as an oligarchy for 12 generations, when they were expelled by Cypselus, father of Periander, with the help of the populace, B.C. 657. After a period of 77 years, the Spartans—the great enemies of democracy in Greece—established again a sort of aristocratic government, and C. figures in history as the close ally of Sparta. In the Peloponnesian war, it at first furnished the greater part of the

fleet against the Athenians, but afterward became jealous of the Lacedæmonian power, and was induced to league with other Grecian states against it, B.C. 395. The war which ensued, known as the *Corinthian War*, lasted till the peace of Antalcidas, B.C. 387. In the strife which broke out between Thebes and Sparta, Corinth remained faithful to the latter. After the battle of Chæroneia, B.C. 338, in which the liberties of Greece were crushed by the Macedonians, it was garrisoned and held by the latter. Subsequently, it was the centre of the Achæan league against the Romans, and in revenge was utterly destroyed B.C. 146 by L. Mumminus, Roman general. For a century it lay in ruins. In B.C. 46, Julius Cæsar rebuilt it, and made it the cap. of Achaia; and although it never again attained its former importance, it became both prosperous and powerful. The apostle Paul planted a Christian Church here, to which he also addressd two epistles. Pausanias, who visited it in the 2d c. after Christ, states that it then contained many public buildings. From the western emperors it passed into the hands of the Venetians. In 1458, it was conquered by the Turks under Mohammed II., recovered by the Venetians 1687, and retaken by the Turks 1715, who held it till 1823. Reduced to ashes in the revolutionary war, and again utterly destroyed by an earthquake 1858, Corinth was gradually rebuilt in a more convenient position near the shore of the Gulf of Corinth. Its pop. is about 2,000.

Ancient Corinth was surrounded by walls which included the Acrocorinthus, and had two harbors—*Lechæum*, on the Crisæan Bay (now the Gulf of Lepanto), opening into the Adriatic; and Cenchreæ, on the Saronic Gulf (now the Gulf of Athens), opening into the Ægean. The former was connected with the city by two parallel walls. The vast wealth of its merchants was the bane of Corinth. It became notorious as the most licentious city in all Greece, and was the favorite resort of courtesans. The patron goddess of the city was Aphrodite, in whose temple, on the Acrocorinthus, were kept more than a thousand 'sacred female slaves' (*hierodouloi*) for the use of strangers. Corinth however, has better claims to remembrance. The art of painting is said to have been invented here, and at the time of its capture by the Romans, it possessed some of the finest pictures in Greece. Among these, was the picture of Bacchus, by Aristides, for which Attalus offered 600,000 sesterces. Architecture, statuary, and bronze work also flourished; and earlier, during the reign of Periander, poetry was cultivated, Arion having either invented or improved the dithyramb in Corinth. Afterward, however, no attention was paid to literature by the inhabitants, and it has been noticed that 'among the illustrious writers of Greece not a single Corinthian appears.'

CORINTH, Alcorn co., Miss.: 90 miles southeast of Memphis, Tenn., at the intersection of the Mobile and Ohio, and Memphis and Charleston Railroads, and in the Civil War a point of great strategic importance. It was

early fortified by the Confederates, and from it, 1862, Apr. 3, Gen. A. S. Johnston marched to attack Gen. Grant at Pittsburg Landing, or Shiloh, his army falling back to it after its defeat of Apr. 6-7. It was taken by Gen. Halleck May 30, and Oct. 3 was held by Gen. Rosecrans with 20,000 men. Early that day Rosecrans was attacked by Gen. Earl Van Dorn at the head of 22,000 men, who after a hotly contested battle of two days was repulsed with a loss of 2,528 killed and wounded, and 1,763 missing. The Union loss was 2,196, killed and wounded, and 324 missing. Pop. (1910) 5,020.

COR'INTH, GULF OF, or GULF OF LEPAN'TO: an arm of the Mediterranean extending from w. to e. through the centre of Greece, from the Ionian to within about 5 m. of the Ægean Sea, thus formed dividing the kingdom into two parts, the Morea forming the s. portion. Its greatest length is about 75 m. with an average breadth of 15 m. The outline of the coast is exceedingly varied, and the scenery is everywhere attractive and rich in contrast. The narrow neck of land, separating the gulfs of Corinth and Ægina, and uniting the Morea to Attica, is the ISTHMUS of Corinth. It is variously estimated, according as it is measured from different points, at from 10 to 20 m. in length, and its breadth varies from 4 to 8 miles. The project of cutting through this isthmus was early entertained, and attempted by Nero without success. This scheme took practical shape, 1882, when the cutting of a canal four miles in length from the Gulf of Corinth to the Bay of Ægina was commenced with much ceremony by the king and queen of Greece. A strong wall, flanked with towers, was anciently built across the isthmus. The celebrated Isthmian games were contested upon this tract.

CORINTHIAN, a. *kŏ-rĭn'thĭ-ăn:* pertaining to *Corinth,* a city of Greece: N. an inhabitant of Corinth; a gay licentious person. CORINTHIAN ORDER, in *arch.,* the fourth of the five orders, characterized by fluted shafts and richly carved capitals: see COLUMN.

CORINTHIANS, *ko-rĭn'thĭ-anz,* FIRST AND SECOND EPISTLES TO THE: two letters of the apostle Paul, the longest (except that to the Romans) and least doctrinal of all in the N. Test. canon. Their genuineness and authenticity are abundantly shown by internal evidence, and have never been seriously disputed. The church at Corinth was founded by the apostle Paul about 52, during a sojourn of about 18 months. It soon fell a pray to evils incident to that luxurious city, such as had made the word 'Corinthianize' a synonym for corruption. The preaching of the Alexandrian Hellenist convert Apollos did much good, but was misused by some in comparisons unfavorable to Paul. Factions, at least tendencies toward faction, arose: a Judaizing party assumed the name of Cephas or Peter, the more liberal Greeks set up banners inscribed 'Paul' or 'Apollos,' while some boasted of being especially Christ's, apparently in a self-defeating effort to escape

sectism. What were the tenets of this Christine party is matter of conjecture: Neander and Olshausen thought them self-willed philosophizers, while Alford, Howson, and Stanley supposed them an extreme wing of the Judaizers. Despising all personal rivalry, Paul urged Apollos to return to Corinth (1 Cor. xvi. 12), but he, unwilling to be preferred to his master, declined to go. When at Ephesus on his third missionary tour, the apostle heard (1 Cor. i. 11) of these contentions, and of a scandalous case of incest (1 Cor. v. Rom. 1). In a previous letter he had warned the Corinthians against sensuality (see 1 Cor. v. 9): the letter is lost; though an Armenian document published Venice, 1819, translated into German by Rinck, 1823, claims to be this epistle. Three brethren from Corinth (1 Cor. xvi. 17) appear to have brought Paul a letter (1 Cor. vii. 1) asking for some instructions; his reply, sent by them, and constituting the first canonical epistle to the Corinthians was written at Ephesus (not at Philippi, as stated in the foot-note in the spring of 57. He begins with gratulations, but soon passes to an earnest protest against division and the overvaluing of human wisdom and eloquence (i. 10—iv. 16). After rebuking impurity (v.) and a litigious spirit and practice (vi.), he answers their questions concerning marriage (vii.), meats offered in idolatrous sacrifice (viii.), and 'spiritual gifts' (xii., xiv.). These topics involve a defense of his own conduct and authority (ix.), some remarks as to the covering of women in worship, and the proper celebration of the Eucharist (x., xi.), much praise of Christian liberty, and the exquisite chapter on charity (xiii.). He then deals with the resurrection of Christ and of believers in a long and momentous chapter (xv.), and concludes with a rule for giving alms, a promise of a speedy visit, and sundry greetings. A brief stay in Corinth, not mentioned in the Acts, may have been made on his way to or from Macedonia. Olshausen, Ewald, and others think another epistle was sent between those known as First and Second.—The second canonical epistle to the Corinthians was written within a year after the first, either at Philippi or at Thessalonica. It was intended also for the other churches in Achaia (2 Cor. i. 1), and was carried by Titus. It is largely personal in its matter, and the mingled feelings which it reflects bear witness to two opposing currents of purpose among the Corinthians. Many, if not most, of them had received his exhortations in the right spirit (2 Cor. vii. 7, 10, 11), but others had set themselves in virulent and even derisive opposition; his indignant feeling toward these is expressed in varying tones of irony and pathos, and calls forth a vigorous sketch of his own toils and sufferings (xi. 21—xii.). He was then or had been recently afflicted with many discouragements and anxieties (i. 8, xi. 28), and with some bodily ailment (xii. 7). This epistle is not easily divisible into topics: besides his warm expression of concern for the Corinthians and vindication of his authority, there is much urging to a generous 'ministering to the saints,'

especially the poor of Jerusalem.—The two epistles are called by Stier 'a pathology and *materia medica* for all that are designed to be physicians of the church;' and Bleek calls the First 'a type and pattern in dealing with the multifarious tendencies, relations, and disorders of the church.' They are of great historic value, full of local color and flavor, and cast much light on the condition of the early church and on the apostle's character and labors. One of the obscurest subjects touched in the N. Test. is the 'gift of tongues,' as to which our knowledge is derived chiefly from 1 Cor. xiv. Among the best English treatises on these Epistles is that of Dean Stanley; though there are also numerous commentaries of great value.

CORIOLANUS, *ko-rĭ-o-lā′nus*, Caius or Cnæus Marcus: Roman patrician, surnamed, according to the half-fabulous legend, Coriolanus, on account of his capture of the town of Corioli, belonging to the Volsci (B.C. 493). Of a proud and haughty spirit, he was strongly opposed to the plebeians, whom he looked upon as the 'enemies' of his order; and on one occasion, during a time of famine, he argued in the senate against a gratuitous distribution of the corn which had arrived from Sicily, and insisted that the plebeian tribunes, lately instituted, should first be discharged from office. For this he was impeached, and banished. He took refuge among the Volscians, whom he aided in their war with the Romans. His victories at the head of his Volscian troops alarmed the Romans, who, on his approach to their city, sent a variety of deputations to plead with him. He was deaf to every entreaty. At last, the noblest matrons of Rome, headed by his old mother and his wife Volumnia, leading her two children, came to his tent. His burning desire to be revenged on those who had dishonored him was cooled by the tears of his relatives, and he led back the Volsci to their own territories, where he lived to an advanced age. Shakespeare has written a play on the subject, in which the character of Coriolanus is conceived in the grandest and most aristocratic style.

CORIUM, n. *kō′rĭ-um* [L., leather]: body armor, composed of scales or small plates of leather, worn by Roman soldiers; the *cutis vera,* or true skin, the innermost layer of the skin in mammals.

CORK, n. *kŏrk* [Sp. *corcho*—from L. *cortex,* bark: Fin. *kuori,* skin, bark: Dan. *kork:* Dut. *kurk*]: a species of oak whose bark, called cork, is extensively used in making stoppers for bottles, casks, etc.; a plug or stopper made of this bark; the bark of the *Quercus sūber,* ord. *Cūpŭlĭfĕræ* or *Corylācĕæ:* V. to stop bottles or casks with corks; to make fast with a cork. Cork′ing, imp. Corked, pp. *kŏrkt:* Adj. provided or fitted with a cork. Corky, a. *kŏrk′ĭ,* or Corked, a. resembling or tasting of cork. Cork′iness, n. elasticity; buoyancy. Corkcutter, n. one who makes corks, etc. Cork-jacket, a jacket lined with cork, for sustaining the wearer in water. Cork-machine,

a machine which produces a cleanly cut cork, usually cylindrical the tapering form being afterward given by pressure. CORK-PRESS, a press in which a cork, previously wetted, is rendered elastic, to enable it the more readily to enter the neck of a bottle. CORK-PULL, a substitute for a cork-screw, having hooks or fangs which clasp a cork when in the bottle and draw it thence. CORK-SCREW, an instrument for drawing corks.

CORK: maritime county in Munster, southmost and largest of the Irish counties; bounded on the n. by Limerick, e. by Tipperary and Waterford, s. by the Atlantic, w. by Kerry; greatest length from e. to w., 110 m.; greatest breadth, 70; average, 34; area, 1,849,683 acres. Cork is hilly, with great variety of surface. The w. part is rocky, mountainous, wild and boggy; the e. and s., rich, fertile, and picturesque. The ranges run e. and w., except the Boghra Mountains, between the Lee and Blackwater. The coast is bold and rocky, and with its indentations, 250 m. long; the bays, which run 3 to 25 m. inland, admitting large vessels. The chief bays are Bantry, Dunmanus, Clonakilty, Kinsale, Cork Harbor, and Youghal. There are many isles off the coast, the chief being Whiddy (in Bantry Bay), Bear Innissherkin, Great Island, and Cape Clear, which lies in lat. 51° 25′ n. and long. 9° 30′ w., and, with the exception of a rock 4 m. s.s.w., is the southmost point in Ireland. In the w., Cork is divided from Kerry by a range of Silurian clay-slate, running n.e. and n., the chief points being 1200 to 2200 ft. high. This range sends offshots to the e., which divide the country into the parallel basins of the three chief rivers of Cork, the Blackwater, Lee, and Bandon; the lower parts of these basins are well cultivated and productive. The basins of the Lee and Bandon consist of red and yellow Devonian sandstone, with some beds of lower carboniferous limestone. This limestone, as in other parts of Ireland, forms the largest lowland tracts and valleys of the county. The Blackwater basin also consists of Devonian strata, but with more limestone. Part of the Munster coalfield occupies 400 sq. m. in the n.w. of the county, with a cold, stiff, moory soil over it. The river-beds generally mark the limestone tracts. Cork has many small lakes in the west. One of these lies at the source of the Lee, amid wild, picturesque scenery, with the ruins of a chapel on an islet frequented by pilgrims. The chief mineral productions are coal and iron, copper (the mines of which are the richest in Ireland), limestone, fine dark-gray and also red marble rich in fossil shells, fullers' earth, brick-clay, marl. There is a thermal magnesian spring at Mallow. The climate is moist, but genial. The soils are calcareous, loamy, and moory. The dairies are extensive, and Cork butter stands in high estimation. The cattle are small in size, but yield large quantities of milk. The chief manufactures are linen, whiskey, porter; and the chief exports provisions. Since 1885 the county returns to parliament seven members, the city two. The antiquities of Cork are stone circles and altars, two

round towers, circular earthworks or raths; many ruins of abbeys and churches, built chiefly by descendants of the English invaders under Henry II., and many ancient castles or square towers of great historical interest. Pop. (1841) 854,118; (1851) 653,180; (1871) 517,076; (1881) 495,607 of whom the vast majority are Rom. Catholics; (1891) 436,641; (1901) 404,611.

CORK: city and parl. borough of Ireland, cap. of the county of Cork and a county in itself; on the Lee, 11 m. above its discharge into the sea, in the centre of a picturesque valley. It is built in part on an island, formerly a swamp, which the word *Cork*, *Corcoch*, or *Corcagh* implies; in part, on the n. and s. slopes of the river-banks. The houses are generally of old red sandstone. Nine bridges cross the river to the central islands. There is a spacious public park, and a walk above a mile long, lined by noble elms, w. of the city. There is also a handsome public cemetery. Cork has a pleasant picturesqueness from its uneven ground, irregular streets, intersecting river, and overhanging heights. The chief buildings are St. Anne Shandon's Church, with a tower 170 ft. high; several Rom. Cath. churches; 4 monasteries; 2 nunneries; the Bishop's Palace; and Queen's College, a fine Tudor-Gothic quadrangular building, opened 1849. The banks of the Lee above and below Cork are richly planted, and studded with villas. The Lee is navigable to about a mile above the city, and on the improvement of the navigation the harbor commissioners have expended above £300,000 in the last 25 years. The extent of the quays is now above 4 m., and ships of 600 tons reach them. Cork harbor, noted for its size and safety, is a basin of 10 sq. m., formed by the estuary of the Lee. It could contain the whole British navy, and has been the main source of the rise and progress of the city. The estuary contains several large isles, rising abruptly and high above the water, with narrow channels between them. The entrance is by a channel two m. long, one m. wide, defended by batteries, on Spike, Hawlboline, and Rocky Islands, which are occupied by convict and ordnance depôts, artillery barracks, and a powder-magazine. On the shores of the estuary are the towns of Passage and Queenstown, formerly Cove of Cork. Cork harbor is much frequented by wind-bound ships and ships waiting orders. The chief manufactures are leather, iron, gloves, ginghams, friezes, flour, malt liquors, and whiskey; iron-shipbuilding has been largely carried on since 1872. The chief exports are grain, provisions, butter, live-stock, and linen, valued at several millions sterling yearly. Cork returns 2 members to parliament.—Cork grew up around an abbey founded 600 by St. Finbar. The Danes in the 9th c. built the city walls. Dermod Maccarthy, king of Cork or Desmond, surrendered it to Henry II., 1172. Cromwell besieged and took it 1649, and Marlborough 1690. James II. landed at Cork 1688. In Cork, William Penn, the founder of Pennsylvania, became a Quaker, with several of the soldiers

of the republican garrison. Pop. (1871) 78,642; (1881) 80,124; (1901) 76,122; of whom about five-sixths are Rom. Catholics.

CORK: unusually developed external bark of the cork-tree or Cork-Oak (*Quercus suber*), the *Alcornoque* of the Spaniards, a species of oak (q.v.), native of the south of Europe and north of Africa. Spain and Portugal chiefly supply the world with cork and in these countries the tree is often planted for the sake of the cork. The cork-tree is not of great size, generally 20–40 ft. high, much branched with ovate-oblong evergreen leaves, which are sometimes entire and sometimes sharply serrated. The acorns are eatable, and resemble chestnuts in taste. The bark in trees or branches from three to five years old acquires a fungous appearance, new layers of cellular tissue being formed, and the outer parts cracking from distention, until they are finally thrown off in large flakes, when a new formation of the same kind takes place. Cork intended for the market is generally stripped off a year or two before it would naturally come away, and the process is repeated at intervals of six or eight years. The bark of young trees and branches, is either useless or of very inferior quality; it is only after the third peeling that good cork is produced. The removal of the cork being not the removal of the whole bark, but only of external layers of spongy cellular tissue, all or greater part of which has ceased to have any true vitality, and has become an incumbrance to the tree, is so far from being injurious, that when done with proper care, it promotes the health of the tree, which continues to yield crops of cork for almost 150 years. In collecting cork it is customary to slit it with a knife at certain distances, in a perpendicular direction from the top of the tree-trunk to the bottom; and to make two incisions across, one near the top and the other near the bottom of the trunk. For the purpose of stripping off the bark, a curved knife with a handle at each end is used. Sometimes it is stripped in pieces the whole length, and sometimes in shorter pieces, cross cuts being made at certain intervals. In some instances, after the perpendicular and transverse incisions are made, the cork is left upon the trees until, by the growth of the new bark beneath, it becomes sufficiently loose to be removed by the hand. After the pieces are detached, they are soaked in water, and when nearly dry are placed over a fire of coals, which blackens their external surface. By the latter operation they are rendered smooth, and all the smaller blemishes are thereby concealed; the larger holes and cracks are filled up by the introduction of soot and dirt. They are next loaded with weights to make them even, and subsequently are dried and stacked, or packed in bales for exportation. In the cutting of corks by hand the only tool employed is a very broad, thin, and sharp knife; the cork is held in the left hand, and rested against a block of wood, and the knife pushed forward, and at the same time its edge is made to describe a circular curve by a

skillful turn of the wrist. The knife requires continual sharpening; the workman has a board before him on which the knife is rubbed on each side *after every cut.* Corks are now usually cut by machinery. In most of the machines, the corks, after being cut into squares of the required length, are made to revolve on grasping spindles; and cutters of various forms such as revolving cutter-wheels, hollow cones with internal cutters, reciprocating blades, toothed cutters, etc., are brought to bear upon the revolving cork.

Besides the use of cork for stopping bottles, casks, etc., it is much used, on account of its lightness, for floats of nets, swimming-belts, etc.; and on account of its impermeability to water, and its being a slow conductor of heat, inner soles of shoes are made of it All these uses are mentioned by Pliny; but the general employment of corks for glass bottles appears to date only from the 15th century. The *Spanish Black* used by painters is made by burning cork in close vessels, and the parings of cork are carefully kept by cork-cutters for this purpose. There are many other applications of this valuable substance in the arts.

CORK, Rock: see Asbestos.

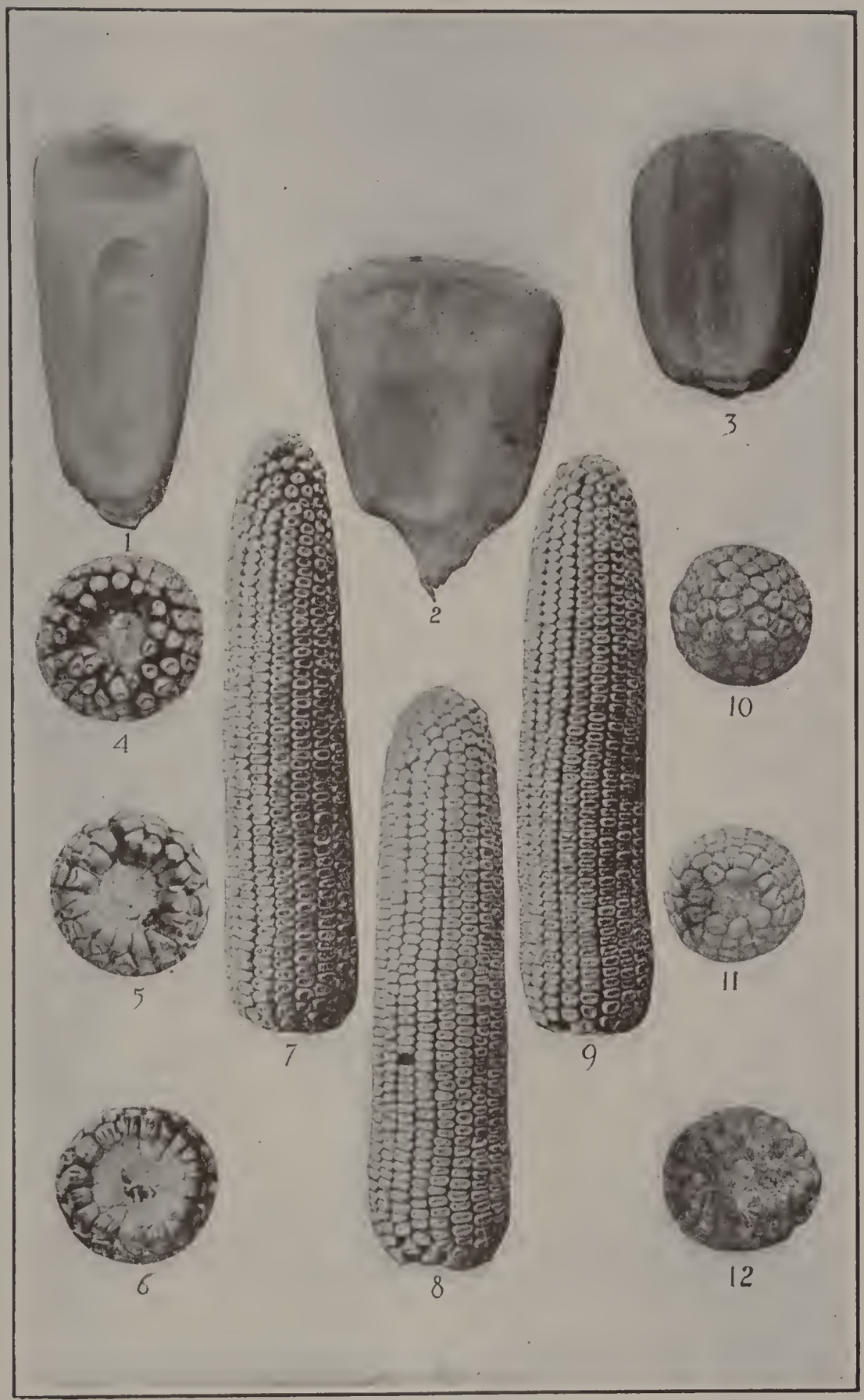
CORLEONE, *kor-lā-ō′nā:* town of Sicily, province of Palermo, about 21 m. from the city of Palermo. It is on a hill near the source of the Belici, and is well built. Its principal public structures are convents and churches. Its inhabitants are engaged chiefly in agriculture. Pop. abt. 16,350.

CORM, n. *kawrm,* [Gr. *kormos,* a stem or log]: in *bot.,* short, roundish, bulb-like underground stem of many endogenous plants. It annually produces buds in the form of small corms, either from its summit or its side; and these gradually exhaust and destroy it. In functions, as in appearance the corm resembles the Bulb (q.v.), but its structure is different; it does not consist chiefly of scales or concentric layers, as a bulb does, but of a solid axis covered only with thin membranes. Examples may be seen in the tulip, crocus, gladiolus, colchicum, and arum. When a corm produces young corms from its summit, as in the crocus, they approach in a few years the surface of the soil, however deeply they may at first have been planted. Cormogenous, a. *kŏr-mŏj′ĕ-nŭs* [Gr. *genăō,* I produce]: having a corm or stem. Cormoph′yta, n. plu. *-mof′ĭ-tă,* or Cor′mophytes n. plu. *-fītz* [Gr. *phuton,* a plant]: plants which have a stem and leaves.

CORMENIN, *korm-năng′,* Louis Marie de la Haye, Vicomte de: 1788, Jan. 6—1868, May 6; b. Paris: French jurist and publicist: Educated for the law, he was, 1810, appointed auditor of the Council of State, and drew up several of its most important reports. He was elected a deputy 1828, and until 1846, was re-elected at every election, sometimes by as many as four departments at once. His extensive knowledge of jurisprudence, and of the practical affairs of government, and the clear and logical force

with which he could present his ideals alike by speech and writing, soon secured him immense influence in public affairs. After the revolution of 1848, Cormenin had the honor of being elected to the Chamber by four departments, and was nominated pres. of the commission appointed to remodel the constitution; and in this capacity strongly advocated universal suffrage. He was appointed member of the council of state reconstituted after the *coup d'état*. In 1855, he was elected a member of the Institut. Besides his numerous pamphlets, Cormenin was author of *Etudes sur les Orateurs Parlementaires*, which has passed through nearly 20 editions; and of a valuable work on the law of France (*Droit Administratif*). After long silence, Cormenin published 1860 *Le Droit de Tonnage en Algérie*. He died at Paris.

CORMORANT, n. *kŏr'mō-rănt* [F. *cormoran*, a cormorant—from mid. L. *corvus-marīnus;* It. *corvo-marino*, a sea-raven], (*Phalocrocorax*): genus of web-footed birds of the family *Pelecanidæ* or *Totipalmati*, having, like the rest of that family, the hind toe united in a single membrane with the other toes; characterized also by a bare dilatable membrane beneath the lower mandible, extending to the upper part of the throat, but not forming a great sac on the throat, as in the pelicans; a compressed bill, rounded above, and with a strong hook at the point of the upper mandible; the nostrils linear, and seemingly impervious to air; the claw of the middle toe serrated, apparently in order that it may be used in trimming the plumage; the wings of moderate length; the tail-feathers stiff and rigid, and used to aid in walking or climbing. The species are distributed over the coasts of most parts of the world, some of them occasionally ascending rivers in pursuit of fish, on which all of them exclusively live, and even visiting inland lakes. They are proverbial for excessive voracity. They do not take their prey by diving when on wing, but pursue it by swimming and diving, using their wings in progress under water, and descend to a wonderful depth; the smaller of the two British species has been caught in a crab-pot fastened 120 ft. under water. When the prey has been caught in a manner inconvenient for swallowing, they toss it in the air, and adroitly catch it as it descends. Some of the species frequent high rocks, others low islands, on which they make rude nests, chiefly of sea-weed; some perch and even build their nests on mangroves and other trees. Their eggs are covered with a calcareous incrustation. The flesh of all the species is dark and of a fishy taste, but is sometimes used as food, particularly the flesh of young birds. The Common Cormorant (*P. carbo*) is mostly of a black color, but for a short time during the breeding season exhibits a sprinkling of longish, white, almost bristly feathers on the head and back of the neck; it is abt. 33 inches long; it is a very widely distributed species, and was formerly sometimes tamed in England, to be employed in catching fish, and is still trained to this use in China. The Green Cormorant,



1. Wedge-shaped kernel. Desirable.
2. Square kernel. Undesirable type.
3. Round kernel. Most undesirable.
4. Well-filled butt of ear. Desirable.
5. Medium-filled butt. Undesirable.
6. Poorly-filled butt. Most undesirable.
7. Cylindrical ear with straight rows of uniform kernels.
8. Cylindrical ear with straight rows of uniform kernels.
9. Nos. 7, 8 and 9 illustrate a desirable kind of selection of uniform ears.
10. Well-filled tip of ear. Desirable.
11. Partly uncovered tip. Undesirable.
12. Most undesirable tip, poorly filled with small irregular kernels.

or Shag (*P. graculus*) is of smaller size, and of a prevailing dark-green color. The double-crested cormorant (*P. dilophus*) is confined to the northern parts of eastern North America, frequenting both fresh and salt water, and a southern form, which is now regarded as a variety of this species, is very abundant about the mangrove thickets of Florida. Cormorants are especially numerous on the Pacific coast of North America, where at least five species and several additional varieties occur, and other representatives of the family are found throughout the world.

Phalacrocorax carbo, the common cormorant, or shag, is found on the coasts of both sides of the north Atlantic, in America migrating in winter as far south as New Jersey or beyond.

That the services of birds, which are such excellent fishers, should be desired by man, is by no means surprising, and it is well known that the Chinese and Japanese have long trained cormorants to fish for them. This training is begun by placing a ring on the lower part of the bird's neck to prevent it from swallowing its prey. After a time the cormorant learns to deliver the fish to its master without having the ring on its neck. It is said to be a very interesting sight to observe the fishing boats, having but one or two persons on board and a considerable number of cormorants, which latter, at a signal given by their master, plunge into the water, and soon return, bringing a fish in their mouths, which is willingly relinquished. In some parts of Europe frequented by species of the cormorant, they commit great depredations on the fish ponds which are kept for the purpose of supplying the tables of the proprietors, and in Holland they are said to be especially troublesome in this way, two or three of these greedy birds speedily clearing a pond of all its finny inhabitants. From their great voracity and entirely piscivorous regimen, it will readily be inferred that their flesh promises very little to gratify the epicure. Consult: Baird, Brewer and Ridgway, *Water Birds of North America*.

CORN, n. *kawrn* [Goth. *kaurn;* Icel. *kiarni;* Dan. *korn*, corn, grain: Dut. *keerne*, a grain, kernel: comp. Gael. *cuir*, to sow seed, seed; *caoran*, berries or seeds: allied to Lat. *granum*, grain, and to Ger. *kern*, kernel]: a single seed or grain of one of the edible plants; grain of all kinds—applied in any country to the principal bread-stuff, or at least to a grain commonly used for food—in England, wheat; in Scotland, oats; in the United States, maize (q.v.) or Indian corn—all of the ord. *Graminiæ*. CORN, v. to cure meat with salt in grains. CORN'ING, imp. CORNED, pp. *kawrnd:* ADJ. granulated; applied to salted beef. CORN'LESS, a. CORNY, a. *kŏr'nĭ*, corn-like. CORN-CHANDLER, a dealer in corn. CORN CRAKE, the corn-crow; the land-rail: see CRAKE. CORNED BEEF, beef cured with salt for keeping. CORN EXCHANGE, a place where grain is sold and where corn merchants meet. CORN COCKLE, a wild plant of corn-fields, having large beautiful red flowers—the *Agrostemma githago*, ord. *Caryophyllăceæ*.

CORNING-HOUSE, the place where gunpowder is granulated or corned. CORN-FLAG, a kind of plant bearing red or white flowers; the common name of *Gladĭŏlus*, ord. *Irĭdācĕæ*. CORN-FLOWER, a plant growing among corn, as the wild poppy or corn-rose, the blue-bottle, etc. CORN-HARVESTER, a machine for cutting corn in the field; sometimes delivering the corn in shocks, sometimes merely laying it in gavels on the ground, or in a cradle on the machine, whence it is taken by hand and shocked. CORN-HUSKER, a machine for husking corn. One kind husks it off the stalk standing in the field. CORN, INDIAN: see MAIZE. CORN-KNIFE, a blade about 20 inches long used for cutting standing corn. CORN-MOTH, a small moth, *Tinea granella*, the larva of which attacks corn in the granaries. CORN-MUSTARD, a name for *Sinapis arvensis*. CORN-POPPY, *Papaver Rhœas*. CORN-ROW MARKER, a sled with a gauged width between the runners for marking out rows in which to plant corn. CORN-STONE, in *geol.*, a term usually applied to the reddish and bluish-red limestones occurring in the middle formation of the old red sandstone—so called from the fertile corn-soil overlying them, e.g. in Herefordshire and Shropshire, England, and in s. Wales.

CORN, n. [F. *corne*, a horn, a horny swelling—from mid L. *corna*, from L. *cornu* a horn: It. *corno*]: a thickening of the cuticle covering and of the toe-joints, caused by pressure or friction of an ill-fitting shoe. As the formation of the thickened cuticle goes on the pressure drives the horny mass into the skin causing at times severe pain. Treatment consists in removal of the cause by the substitution of well-fitting, not too loose and not too tight, shoes. Paring or scraping of the surface of the corn affords merely temporary relief and an effort should be made to remove the entire mass, including the 'core.' It is sometimes possible, after soaking the foot for a time in hot water, to loosen the corn from its surroundings by means of the finger nail, and so extract it entire. Salicylic acid applied in the form of an ointment every night will loosen the corn from its bed and make its extraction easy. A 'soft' corn is one occurring between the toes where the secretions keep the outer layers moist and soft. Before its extraction it should be dried by keeping a pledget of cotton between the toes and hardened by repeated applications of a solution of alum, or of alum in fine powder. CORNEAN, a. *kŏr′nĭ-ăn*, in *geol.*, an igneous rock, so called from its tough, compact, and horn-like texture. COR′NEOUS, a. *-nĭ-ŭs*, horny, of a substance resembling horn. CORN′LESS, a. without corns. COR′NY, a. *-nĭ*, hard; corn-like.

CORNACEÆ, *kawr-nā′sē-ē:* small nat. ord. of exogenous plants, containing about 40 known species, chiefly trees and shrubs, with a few herbaceous plants. The leaves are simple, without stipules; the flowers in heads, umbels, or corymbs. The calyx is 4-lobed or 4-toothed; the petals 4, equal, oblong, broad at the base, inserted into the upper

part of the tube of the calyx; the stamens 4, alternate with the petals; the ovary is adherent to the tube of the calyx, 2—3-celled crowned by a disk; the ovules solitary; the style filiform; the stigma simple; the fruit is fleshy and drupe-like. The C. are natives of the temperate parts of the n. hemisphere. The fruits of some are eatable; the bark and leaves of some are medicinal; some are valued as ornamental plants. CORNEL, DOGWOOD, AUCUBA, and BENTHAMIA are examples.

CORN A'PHIS, or WHEAT A'PHIS (*Aphis granaria*): species of *Aphis* (q.v.), or Plant Louse, sometimes injurious to corn crops, appearing in great numbers on the ears, sucking the juices of the plant, and so impoverishing the

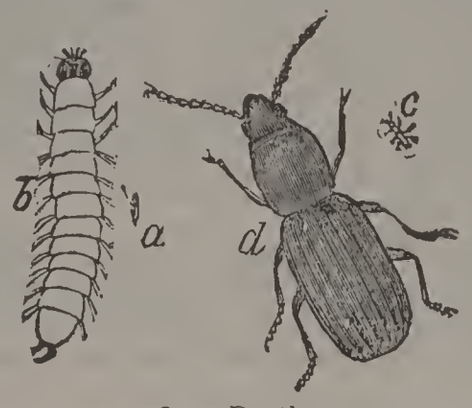
Corn Aphis:
a, natural size.

grain. It infests wheat, barley, and oats. The male is green, the female dull orange.

CORNARO, *kor-nâ' ro*, CATERINA, QUEEN OF CYPRUS: 1454–1510, July 5; b. Venice. She succeeded her husband, James II., Lusignan, as regent, when 19 years old, and ruled benignly till 1489, Feb. 26, when, harassed beyond further endurance by the social and political jealousies of her court and the day, she abdicated the throne in favor of the republic of Venice, and returned to her native city. The doge gave her the castle of Asola for a residence. Titian painted her portrait, and the romancists have since written many pleasant fictions on her private life and public career.

CORNARO, LODOVICO: Venetian nobleman; 1467—prob. 1566: remembered as an instructive example of temperance. His constitution, naturally not strong, was greatly injured by intemperate eating and drinking, with other excesses; so that, when 40 years of age, he appeared to have little hope of prolonged life. At this time he adopted strict rules of temperance both in meat and in drink, which, co-operating with his general care of health, and gentle exercises of various kinds, served to extend his life, according to the best authorities, to nearly 100 years. His old age was remarkably cheerful. He wrote in his 83d year his celebrated treatise, *Discorsi della Vita Sobria* ('Essay on Temperate Living'), published first at Padua, 1558; translated into all European languages. The best English translation is one bearing date 1779.

CORN BEE'TLE (*Cucujus testaceus*): minute beetle, which inhabits granaries and mills, and of which the larva



Corn Beetle:
a, larva, natural size; *b*, larva, magnified; *c*, perfect insect, natural size; *d*, perfect insect, magnified.

often does much mischief, feeding, like the weevils, on grain, particularly on wheat. The perfect insect is of a bright fulvous color; the larva ochreous, with a forked tail.

CORN BRASH, in Geol.: member of the Lower Oolite, so called from the readiness with which it disintegrates for the purposes of corn-land. It consists chiefly of a rubbly, cream-colored limestone, in thin layers, always nodular and concretionary, each fragment having a deep-red coating. Occasional beds of clay occur, interstratified with the limestone. The whole thickness of the group rarely exceeds 15 ft. The C. is extremely rich in Echinodermata and Mollusca, with the exception of Cephalopoda, the abundant Oolite genus Belemnites being unaccountably wanting.

CORNBURY, *korn'bér-i*, EDWARD HYDE, Lord: d. 1723, Apr. 1: British gov. of New York. He was eldest son of the second earl of Clarendon and by marriage nephew of James II. whom he deserted 1688 to enter the service of the Prince of Orange. When the latter became King William III he appointed C. colonial gov. of New York. He reached his post 1702, May 3, and entered upon an administration which proved so arrogant, corrupt, and scandalous that the crown authorities yielded to the demands of the colonisits and removed him 1708. He was then held under arrest for some time by his creditors, but upon the death of his father he returned to England and succeeded to the title and estate.

CORNEA, n. *kŏr'nĕ-ă* [L. *cornĕŭs*, horny—from *cornu*, a horn: F. *cornée*—from *corne*, horn]: one of the coats of the eye, a horny transparent membrane forming the front part of the eye-ball through which the light passes: see EYE. CORNEULE, n. *kŏr'nūl*, a little cornea, such as covers each segment of the compound eyes of insects.

CORNEILLE, *kor-nāl'*, PIERRE: creator of French tragedy: 1606, June 6—1684, Oct. 1; b. Rouen, where his father was an advocate. Pierre studied for the legal profession. A love adventure, in which he became the rival

of a friend, first prompted C. to write verses, and *Mélite*, the comedy founded on this incident, was performed with success 1629. It was quickly followed by other dramatic pieces: *Clitandre, La Veuve, La Galerie du Palais, La Suivante*, and *La Place Royale*—all so successful that a special theatrical company was formed for the performance of C.'s pieces. In 1635 appeared his *Médée*, a declamatory drama, in imitation of Seneca. Cardinal Richelieu, who aspired to be the Mæcenas of the stage, kept in his pay a number of writers for whom he dictated plots, and wished to number C. among his retainers; but C. was so audacious as to alter the plan of a comedy, and lost the cardinal's favor. He then returned to his native place, where M. Chalon, once sec. to Maria de' Medici, suggested that he should turn his attention to tragedy. As the English drama was not known, or at least not relished at that time beyond the limits of England, C. acquired the Spanish language that he might study the Spanish drama, the only other of any consequence in Europe. The result was the *Cid* (1636), which was received with enthusiastic applause. Cardinal Richelieu alone seemed to find no merit in this drama, and induced the Academy to publish a critique in some respects unfavorable. In his next celebrated piece, *Horace* (1639), C. endeavored to establish his claim to creative genius, which had been questioned by his enemies; but *Cinna* (1639) has been regarded by some French critics as C.'s master-piece, though others might award the honor to *Polyeucte* (1640). In the *Mort de Pompée* (1641), though there is something dignified in the style, it occasionally passes into bombast. The comedy of *Le Menteur* (1642), partly taken from Pedro de Roxas, has natural truth and humor. C. seems at this point to have exhausted his resources, and all his later pieces are almost forgotten. Of his 33 dramas only a few have kept their place on the French stage. Nevertheless his countrymen call him *Le grand Corneille*, though Voltaire, who edited an edition of his works, and Laharpe have expressed themselves in some respects unfavorably regarding his genius. The faults of conception in several of his pieces were pointed out by the sharp criticism of Lessing. A. W. Schlegel also spoke of C. in such a way as to provoke hot replies from the wounded pride of the French littérateurs. C.'s chief merit lies in his dignity of style, and in a certain declamatory grandeur of sentiment, which his countrymen have been accustomed to consider truly epical, and which it is now impossible to convince them as nearly resembles rant as it does sublimity. The best edition of his complete works was edited by Renouard (12 vols., 1817).—C.'s brother, Thomas C. (1625–1709), also acquired reputation as a dramatic writer.

CORNEL, n. or a. *kŏr'nĕl* [F. *cornille*, and *cornouille*—from L. *cornus*, the cornel-cherry—from *cornu*, a horn] (*Cornus mas*): the Cornelian Cherry (*Cornus* of the ancients); tree or shrub 15–20 ft. high, of the nat. ord. *Cornaceæ;* native of the middle and south of Europe, and of great part of Asia. It was formerly much cultivated as a fruit-tree, as it still is in Germany and some other parts of Europe.

It has oval leaves, and small yellow heads of flowers, which appear before the leaves in spring, and which abound in honey and are much frequented by bees. The fruit is oblong, a little larger than a sloe, shining, red, or rarely yellow or white. It is late in ripening, and until quite ripe is very austere; but when perfectly mellow, has an agreeable vinous acid taste; it is either eaten as it comes from the tree, or is made into a preserve, which is said to be tonic, and useful in diarrhœa. When gathered unripe, it is pickled like olives. It was formerly also fermented for a beverage. In Turkey, it is still much used in making sherbet. The wood of the C. is extremely hard and tough,

Cornel:
a, a branch with leaves and fruit; *b*, a single flower.

and well adapted for those purposes of joiners and turners to which the size of the tree will admit of its application. It is used for making mathematical instruments.—DWARF C. (*C. Suecica*), native of mountain-pastures and bogs throughout the north of Europe, is a plant about six inches high, with creeping root, sessile ovate leaves, each stem producing a single umbel of a few purple flowers, followed by small sweetish red fruit, which is tonic, and has the power of remarkably increasing the appetite, whence the plant has received a Gaelic name, signifying *Plant of Gluttony*.—Dogwood (q.v.) belongs to the same genus.

CORNELIA, *kor-nē′lĭ-a:* Roman matron, daughter of P. Scipio Africanus the elder, and of Æmilia (daughter of L. Æmilius Paulus). Though of the most aristocratic birth, she married into a plebeian family, well-known, however, for its integrity and public spirit, and as the wife of T. Sempronius Gracchus became the mother of 12 children, all of whom died in infancy except Sempronia, who married P. Scipio Africanus the younger, and Tiberius and Caius

who subsequently achieved great distinction as tribunes. After the death of her husband she declined an offer of marriage from Ptolemy, King of Egypt, and retired to a house in Misenum which was afterward the residence of Marius and Lucullus and the death-place of the emperor Tiberius. She was a woman of exalted virtue, large intelligence, and great hospitality, called her children her richest jewels, and was known as the 'Mother of the Gracchi.' See GRACCHUS.

CORNELIAN, n. *kŏr-nēl'ĭ-ăn* [F. *cornaline*—from It. *cornalino*—from L. *cornu*, a horn]: a variety of chalcedony —also spelled CARNELIAN. *Note.*—The spelling CARNELIAN arose from a popular etymology, as if it were derived from L. *carnĕus*, fleshy, in allusion to the flesh-like color of the stone: see further, CARNELIAN.

CORNELIUS, *kor-nēl'ĭ-ŭs*, ELIAS, D.D.: 1794, July 31—1832, Feb. 12; b. Somers, N. Y. He graduated at Yale 1813, studied theol. with Dr. Dwight and Lyman Beecher, was licensed to preach 1816, and ordained an evangelist 1817. Appointed an agent of the A. B. C. F. M., he was assigned to missionary labor among the Cherokee and Chickasaw Indians, travelled through the south and raised money to establish missions for them, rescued an Indian child from a band who had scalped her mother, educated her, and made her story the subject of the well-known Sunday School book *The Little Osage Girl*. He became the colleague of Dr. Worcester in the Tabernacle Church, Salem, Mass., 1819, was sole pastor 1821–26, and sec. of the American Education Soc. 1826–32. He was appointed sec. of the A. B. C. F. M., 1832, Jan., but died from brain fever at Hartford within a month. He received the degree D.D. from Dartmouth College, 1829. He was noted for Christian devotedness.

CORNELIUS, *kor-nā'le-ŭs*, PETER VON: 1787, Sep. 23—1867, Mar. 6; b. Düsseldorf: one of the first masters of the modern German school of painting. He studied under Langer in the academy of his native town. When only 19 years of age, he painted some remarkable frescoes for the cupola of the old church of Neuss. Four years later, he gave still more unmistakable proofs of a creative fancy in his illustrations of Goethe's *Faust*, and the *Nibelungen Lied*. In 1811 he went to Rome. This journey had profound influence on the whole of his future career. The great importance of the early masters became ever clearer to him as he studied their choicest productions. He gained a wide reputation, while at Rome, by two cartoons, *Joseph's Interpretation of the Dream*, and *Joseph's Recognition of his Brethren*. In 1819 he was called to Munich, and entered the service of the then crown-prince of Bavaria. Here he remained till 1841, and executed those grand works on which his fame mainly rests, and which may be divided into two classes, Pagan and Christian, the former of which comprises the large frescoes in the saloon of the Glyptothek, all illustrating stories of the Greek gods and heroes, as also representations of several Hesiodic myths, and of the

various incidents of the Trojan war; while the latter, or Christian series, begun after the completion of the former in 1830, consists of frescoes on New Testament scenes, extending from the 'Incarnation' to the 'Judgment,' and decorate the 'Ludwig's Church' in Munich, built for the purpose of affording scope for the genius of Cornelius. The 'Judgment' is the largest fresco in the world, larger even than Michael Angelo's 'Judgment' in the Sixtine Gallery. In 1841, C. was invited by the king of Prussia to Berlin, where he was appointed director of the Berlin Academy. Among his productions in the Prussian capital are the frescoes for the Campo-Santo, or royal burial-place Opinion is divided regarding the merits of Cornelius. By his own countrymen he is extremely admired; French critics, on the other hand, regard him as more a thinker than an artist, sacrificing to his conception both truth of color and expression. He is admitted to have been a profoundly creative genius, but *not* a painter. He formed, however, a numerous school, from which have gone forth many illustrious pupils; but he lived to see it losing hold on public sympathy.

CORNELIUS NEPOS.: see NEPOS.

CORNELL, *kor-nĕl'*, EZRA: 1807, Jan. 11—1874, Dec. 9; b. Westchester Landing, N. Y.: philanthropist. He received a common-school education, removed to Ithaca 1828, was manager of the mills there many years, planned and built the water-power tunnel at Fall Creek, superintended the erection of the first telegraph line in the United States, opened for business between Washington and Baltimore 1844, June, and spent the remainder of his business life in the extension of the telegraph service throughout the northern and western states. He was a delegate to the first republican. national convention 1856, pres. of the N. Y. State Agricultural Soc. and its representative at the international exposition at London 1862, member of assembly 1862–3 and state senator 1864–68. In 1865, he founded Cornell Univ. (q. v.), at Ithaca, with an endowment of $500,000, to which he subsequently added nearly $400,000. He also established the C. library at Ithaca, at a cost of $100,000.

CORNELL UNIVERSITY: at Ithaca, Tompkins co., N. Y.; established through the liberality of Ezra Cornell, with aid from the U. S. govt. and chartered by the N. Y. legislature 1865, Apr. 27. In 1862, July, congress passed an act granting to each state 30,000 acres of public land for each senator and representative to which it was entitled in that body, on the condition that it should provide at least one college where the leading object would be to teach such branches of learning as are related to agriculture and the mechanic arts, without excluding other scientific and classical studies, and including military tactics. Under this act the share of N. Y. state amounted to 990,000 acres, one-tenth of the value of which could be used for experimental farms, but no portion for buildings. The state received the scrip for this amount of land in the west, and

CORNELL UNIVERSITY.

1. Boardman Hall.
2. Library Building.

first offered it to another institution which failed to carry out the conditions imposed; and then, through the efforts of Ezra Cornell, Andrew D. White, and others, the legislature incorporated the C. U. and appropriated to it the entire proceeds of the sale of this land on the conditions that the institution should be suitably endowed and should receive one student annually from each assembly district in the state without charge for tuition. Mr. Cornell then gave it an endowment of $500,000, to which he subsequently added nearly $400,000 in cash, land, and buildings. Organized in accordance with the requirements of its charter, it was formally opened 1868, Oct. 7, under the presidency of Hon. Andrew D. White. In his address upon this occasion, Mr. Cornell made a declaration which has since been adopted as the motto and aim of the institution: 'I would found an institution where any person can find instruction in any study.' Pres. White remained in charge of C. U. till his appointment to be U. S. minister to Germany, and was followed by Charles K. Adams, LL.D., who, resigning 1892, May, was succeeded by Jacob G. Schurman, PH.D. C. U. is thoroughly equipped in every dept., and it has had remarkable success from its inception. Its material equipment consists of the following buildings: Morrill Hall, containing the offices, architectural rooms, and agricultural museum; White Hall, gift of ex-Pres. White, rooms of the literary societies and of the Univ. Christian Assoc.; McGraw Hall, gift of the late John McGraw, the library, anatomical lecture-room, seminary room, special and general anatomical laboratories, geological and paleontological lecture-rooms and laboratories, the great bell, the McGraw chime of nine bells, and the great clock; the civil engineering building, laboratories, museums, and class-rooms; Sibley College, gift of Hon. Hiram Sibley, who gave also the machinery, and the greater part of all the collections with which the buildings are supplied, class-rooms, museums, work-shops, drawing-rooms, laboratories, and other features of the dept. of mechanic arts; chemical and physical building, opened 1883, Sep.; Sage College for women, gift of Hon. Henry W. Sage, home or dormitory for students, parlors, gymnasium, museum, laboratory, dining-hall, lecture and recitation rooms, and special facilities for the pursuit of botany, floriculture, and ornamental gardening; Sage Chapel, same donor, auditorium with seating capacity of about 500 persons, small chapel opening into it, and the memorial chapel completed 1884 and having rich memorial windows commemorating the connection of Ezra Cornell, John McGraw, and Mrs. Jennie McGraw-Fiske with the univ.; gymnasium and armory; Barnes Hall, gift of the late Hon. Alfred S. Barnes, for the use of the Univ. Christian Assoc.; Rockefeller Hall, gift of John D. Rockefeller, etc. Many of the museums and collections are of exceptional extent, value, and interest, and in some lines the latter are unequalled in

this country. The museum of archeology comprises about 5,000 specimens; of botany, 16,000 species; of chemistry 4,000 specimens, many of extreme rarity; of conchology 80,000 examples of over 20,000 varieties, representing at least 15,000 species; of paleontology includes the Jewett collection of N. Y. fossils and the Hartt unique collection from Brazil; and of general zoology the Hartt collection of 3,500 examples of about 2,400 species of entire animals in alcohol, and a large number of *papier-mâché* models. The library, including the Pres. White collection, contains (1906) over 286,000 vols. and 46,000 pamphlets, and comprises the Anthon library of nearly 7,000 vols.; the Bopp library of 2,500 vols. on oriental languages and literatures; the Goldwin Smith library of 3,500 vols., historical works and English and ancient classics; the White architectural library of over 7,500 vols.; the Kelly mathematical library of 1,800 vols. and 700 tracts; the Cornell agricultural library bought by the founder; the Jared Sparks library of over 5,000 vols. and 4,000 pamphlets relating to the history of America; the May collection, relating to the history of slavery; the Eugene Schuyler collection of folk-lore; the law library of over 4,000 vols., bought by the univ.; and the Pres. White library of history and political science, of 30,000 vols. and 10,000 pamphlets, presented 1887, Jan. 19. The university includes a law school, a school of pharmacy, the Pres. White school of history and political science, a school of pedagogy, a school of journalism, a college of agriculture, the Sibley college of mechanical and electrical engineering, etc. The total property valuation of C. U. is now (1906) over $12,700,000; the total invested funds over $7,700,000 and the annual income about $1,200,000. Nearly 8,000 degrees have been granted and there are 7,000 living graduates.

There has been established by the university 36 undergraduate scholarships, each of the annual value of $200.

The university has also the following fellowships and graduate scholarships: eight university fellowships, denominated respectively, the Cornell Fellowship; the McGraw Fellowship; the Sage Fellowship; the Schuyler Fellowship; the Sibley Fellowship; the Goldwin Smith Fellowship; the President White Fellowship; and the Erastus Brooks Fellowship; five university fellowships; two President White fellowships; three Susan Linn Sage fellowships in philosophy; two fellowships in political economy; two fellowships in Greek and Latin; one feilowship in American history; six graduate scholarships in the Susan Linn Sage School of Philosophy, ten graduate department scholarships, the Oliver Graduate Scholarship in mathematics.

CORNER, n. *kŏr'nėr* [OF. *cornière*, a corner—from F. *corne*—from mid. L. *corna*, a corner; also L. *cornu*. a horn, a projecting point: comp. Gael. *cearn*, a corner]: a horn-like projection; the small space at the point where two

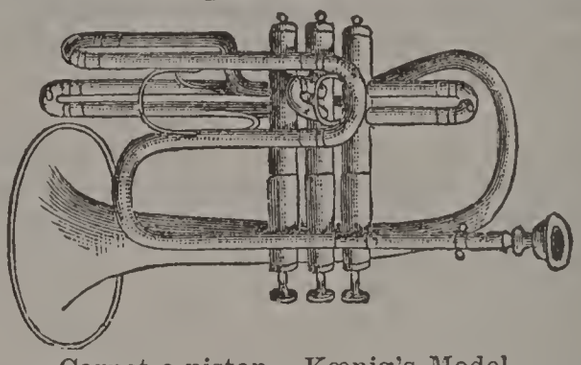
lines meet; an angle; a small confined part of a larger space; a secret or retired place; every part; the end or limit. COR'NERED, a. *-nĕrd*, having corners; in markets, said of a commodity so completely bought up by one man or party that it can not be obtained elsewhere. CORNER-STONE, the principal stone uniting two walls at a corner. CORNERWISE, a. with the corner in front.

CORNER, a commercial term used in England and the United States to signify the control of so large a supply of an industrial or commercial product or of so much of a stock that the market value of the commodity held is tremendously advanced, and those who have made contracts to deliver the stock or commodity in question must buy at the prices set by the pool. So the actual difference between the manœuvre of the corner-man and the normal effort to bull prices by controlling supply is that the corner is based upon knowledge of contracts made for future delivery by those who are not in present possession of the stock. Successful corners depend then not only on a thorough understanding of where the control of the commodity in question lies, lest another holder at the critical moment be able to undersell the would-be corner-man, but on the willingness of the buyer to keep his contracts at no matter what cost. In other words, if the corner-man is too greedy and demands too high a price, buyers may smash the corner by refusing to keep their contracts, a procedure with a certain amount of poetic justice in it, at least when the members of the corner have gained control of the supply which they are to rebuy from the contractors. Cereals and cotton, because of the large amount of future trading done in them, are favorite fields for the corner-man; but the exact amount of a year's crop and the thorough location of such holdings make the manœuvre dangerous.

CORNER-STONE: a portion of an edifice whose laying was associated with special ceremonies in olden times and still is an occasion for solemnity in many instances. The corner or foundation-stone is often referred to in the Bible and appears in Babylonian inscriptions. The valuable wrought stones for the foundation of Solomon's temple and the corner-stone laying of that structure and that of Zerubbabel are detailed in the Old Testament (1 Kings, v., vi., vii.; Ezra iii. etc.), while the corner-stone is a symbol referred to in the prophetic writings as well as rabbinical literature. The ceremony of laying the corner-stone of public structures is of interest; it consists of placing pertinent records, papers, or memorials, in the hollow part of the stone beneath, and then laying in place the corner-stone, accompanied by prayer, song and address.

CORNET, n. *kōr'nĕt* [F. *cornet*—from F. *corne*—from L. *cornu*, a horn]: a stop, or series of pipes, in an organ, intended to imitate the tone of an obsolete wind-instrument which has been superceded by the oboe.—The CORNET-A-

Piston, a modern wind-instrument of the trumpet kind, is generally made of brass, has two or three valves, and in brass bands takes the soprano and contralto parts. It was



Cornet-a-piston.—Kœnig's Model.

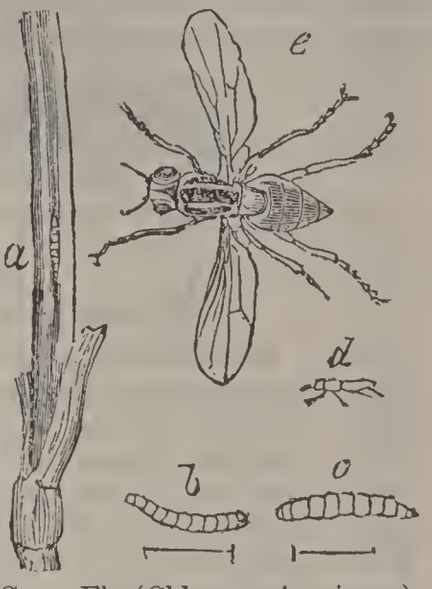
first introduced in France as an orchestral instrument. Its tones are less powerful, but far more easily manageable than those of the trumpet.

CORNET, n. *kŏr nĕt*, [It. *cornetta*, the ensign carried by a lancern on horseback; F. *cornette*, a cornet of horse]: until 1871, the lowest grade of commissioned-officer in the Brit. cavalry, equivalent to *ensign* in the infantry, his duty being to bear the standard of the troop A C.'s commission, in the days of 'purchase,' cost £450; but much larger sums were habitually paid, varying according to the celebbrity, or rather the fashionable character of the corps. The pay being utterly inconsistent with the price paid for the commission, none but wealthy men could enter the cavalry. In 1871, the rank was abolished, sub-lieutenants (merely probationary lieutenants) being substituted. Cor'netcy, n. *-sĭ*, the rank of a cornet or his commission.

CORNETO, *kor-nā'tō:* town of central Italy, about 12 m. n. of Civita Vecchia, occupying a commanding eminence on the left bank of the Marta, two or three m. from the Mediterranean, over which it has an extensive view Pop. 5000. C. rose out of the ruins of the Etruscan city of *Tarquinii*, and is enriched by some of its monuments. It was erected into a city by Eugenius IV. 1432: but the picturesque old battlemented walls and towers which surround it are said to belong to an earlier period. During the faction-wars of the Guelphs and Ghibellines, this city maintained a firm allegiance to the popes.—The remains of Tarquinii (perhaps the most interesting in existence to the student of Etruscan history, as it is from the tombs here that most of our knowledge as to the games, costumes, and religious customs of this remarkable people has been derived) lie about a m. and a half from Corneto. The Necropolis of Tarquinii covered 16 sq. m., and it has been estimated on high authority that it could not have contained less than 2,000,000 tombs. Of this vast number, some 2000 have been opened within recent years. Among the most noteworthy of these are the Grotta delle Iscrizioni, the Grotta delle Bighe, Grotta del Barone, Grotta Francesca, Grotta del Cardinale, Grotta del Triclinio, and Grotta della Querciola. Treasures from this mine of Etruscan wealth, as it may be called, enrich the British

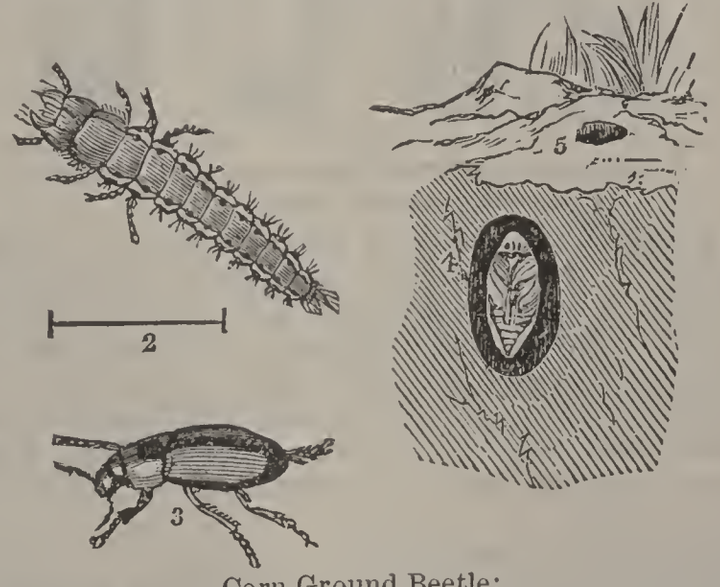
Museum, and other important collections in Britain and on the continent.

CORN FLY: common name of a number of small dipterous (two-winged) insects, of the large family *Muscides*, particularly of the genera *Chlorops* and *Oscinis*, which do great injury to corn crops. A most destructive species is *Chlorops tæniopus*, a fly about a line and a half in length, of a pale yellow color, with black stripes, which deposits its eggs between the leaves of young plants of wheat or barley. The maggots living on the juices of the plant produce the disease which, from the swelling of the joint, is called *gout;* and the plant, impoverished, either produces no ear, or an imperfect and partially shrivelled one.



Corn Fly (*Chlorops tæniopus*): *a*, a portion of a culm or stem of wheat with swollen joint, caused by larva of corn fly; *b*, larva; *c*, pupa; *d*, fly, natural size; *e*, fly, magnified.

CORN GROUND BEETLE (*Zabrus gibbus*): insect of the ord. *Coleoptera*, section *Pentamera*. It is about six lines in length, of a shining pitchy black color, with rusty jaws and legs, very broad and convex, the wings large, the antennæ short and slender. It burrows in the ground, climbs the stalks of wheat and barley by night, and devours the ears. The larva is of a remarkable appearance, whitish, with brown head and

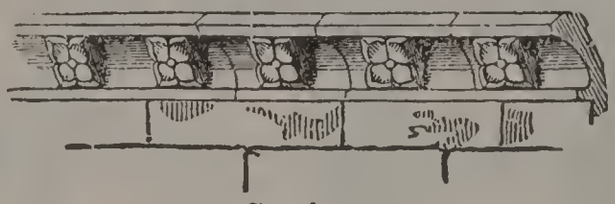


Corn Ground Beetle:
1. larva, magnified; 2, natural size of larva; 3, perfect insect, female, slightly magnified; 4, a cell containing pupa; 5, a burrow.

thorax, and a brown stripe down the body, powerful jaws, six thoracic legs, and little tufts of hair along the sides of its elongated tapering abdomen. It burrows in the earth,

and eats the stems of corn close to the surface of the ground.

CORNICE, n. *kŏr'nĭs* [OF. and It. *cornice;* F. *corniche,* a cornice—from L. *corōnă:* Gr. *korōnē,* the summit or head]: the highest projection or border on a wall or column; the projecting molding used to finish off the top of



Cornice:
Ensham Church, Oxon, abt. 1450.

a wall. In classical architecture, the C. is the uppermost member of the entablature, surmounting the frieze. Each of the orders has its peculiar C.: see ENTABLATURE. In the Gothic styles, the form of the C. varies greatly. 'In the Norman style,' says Parker, 'a plain face of parapet, slightly projecting from the wall, is frequently used as a C., and a row of blocks is often placed under it, sometimes plain, sometimes molded or carved into heads and other ornaments, when it is called a corbel table.' These blocks have commonly a range of small arches over them. In some cases a small plain string is used as a cornice. The corbel table continued to be used as a C. in the early English style; but it was generally more ornamented than in the Norman, the arches being commonly trefoils and

Corbel Table.

well molded. The blocks are frequently ornamented with a head, or other figure characteristic of the style. Sometimes a range of horizontal moldings is placed above the arches of the corbel table, and sometimes the C. consists of simple moldings, without any corbel table.

The term C. is also used, in a general sense, to signify any horizontal molded projection, terminating a building, or the component parts of a building; e.g. the C. of a room.

CORNICHE: see RIVIERA.

CORNICLE, n. *kŏr'nĭ-kl* [L. *cornic'ŭlum,* a little horn—from *cornu,* a horn]: a little horn. CORNIC'ULATE, a. *-nĭk'-ū-lāt,* horned. CORNIF'IC, a. *-nĭf'ĭk* [L. *facio,* I make]: producing horns. COR'NIFORM, a. *-nĭ-fawrm* [L. *forma,* shape]: having the shape of a horn. CORNIG'EROUS, a. *-nĭj'ĕr-ŭs* [L. *gero,* I carry]: having horns.

CORNIFEROUS PERIOD, *kor-nĭf'ĕr-ŭs,* in Geology: second of the five divisions of the Devonian age, sometimes included with the first under the name of Lower Devonian. It embraces the cauda galli epoch, named from the feathery forms of a fossil; the Schoharie epoch, whose rocks are fine-grained, calcareous sandstones, full of fossils; and the Upper Helderberg epoch, whose rocks are limestones, and whose epoch is the coral reef period of the paleozoic ages. The Corniferous Period contains the earliest discovered remains of fishes.

CORNING, *kawr'nĭng,* New York: city, county-seat of Steuben co. It is beautifully situated on the banks of the Chemung river, and the Erie, and the Delaware, Lackawanna & Western railroads, about 290 m. w.n.w. of New York city and 132 m. e.s.e. of Buffalo. It has an excellent free school system, a free academy erected at a cost of more than $75,000, and a public library; also a number of churches. There are several banks in the place, and it has a large trade in coal and lumber. The town of Knoxville, on the opposite side of the river, is connected by a bridge. Corning is widely known for its extensive foundries, glass works, railroad car shops, and iron works. It is an important inland manufacturing town, and its citizens manifest a degree of public enterprise that is not always found even in larger places. Pop. (1910) 13,730.

COR'NING, Erastus: 1794, Dec. 14—1872, Apr. 9; b. Norwich, Conn.: merchant. He became clerk in his uncle's hardware store in Troy when 13 years old, and in the business house of James Spencer in Albany when 20, where he was afterward admitted to partnership. On the death of his uncle, who willed him the greater part of his property, he established the large hardware firm of Erastus Corning & Co., bought a controlling interest in the extensive Albany iron-works, engaged also in the banking business, and applied much of his time and means to the development of the railroad system of the state. He effected the consolidation of the various roads into the New York Central railroad, and was its pres. 12 years; was state senator 1842-45, member of congress as a democrat 1857, Dec. 7—1859, Mar. 3, and 1861, July 4—1863, Mar. 3; member of the peace congress 1861; was elected regent of the Univ. of N. Y. 1833, and was vice-chancellor of the board at his death. He left a fortune of $8,000,000.

CORNING, James Leonard, American physician: b. Stamford, Conn., 1855, Aug. 28. He studied at the universities of Heidelberg and Würzburg in Germany, graduating at the latter. He has an international reputation as an expert neurologist and as the discoverer of spinal anæsthesia (1885). He has contributed a large number of articles on his specialties to the medical press, and among his publications are: *Brain Rest* (1883); *Local Anæsthesia* (1886); *Hysteria and Epilepsy* (1888); *Trea-*

tise on Headache and Neuralgia (1888); *Pain in its Neuro-Pathological and Neuro-Therapeutic Relations* (1894); *Experimental Researches Regarding the State of the Mind in Vertigo* (1895). Under the pseudonym of Roland Champion he wrote a Romance entitled *Princess Ahmedee* (1900).

CORNISH, Charles John, English naturalist: b. Salcombe House, Devonshire, 1859, Sept. 28. He was educated at the Charterhouse and Hertford College. Oxford, and has for many years been a frequent contributor to *The Spectator* on natural history and out-door life. His published books include: *The New Forest*(1894); *The Isle of Wight* (1895); *Life at the Zoo* (1895); *Wild England of To-day* (1896); *Animals at Work and Play* (1896); *Nights With an Old Gunner* (1897); *Animals of To-day* (1899); *The Naturalist on the Thames* (1902).

CORNISH ENGINE, a single-acting steam-engine used for pumping water. The pump-rods are loaded so as to have sufficient force by their gravity to raise the water, and the down-stroke of the steam piston at the other end of the beam is used to raise them. The name comes from the engine's use in the copper and tin mines of Cornwall.

CORNISH LANGUAGE, a Celtic dialect spoken in Cornwall, which died out in the 18th century, though isolated words or terms are still in use, and some fragments of literature are still extant. It is allied to the Welsh and Breton. See Celtic Languages and Celts.

CORN-LAWS, regulations of the grain trade. The best means of securing a sufficient and steady supply of breadstuffs has been a subject of great diversity of opinion, and the practice of governments has varied much at different times. The theory urged by Adam Smith, and now adopted in Great Britain, is that government should do absolutely nothing in the matter, on the ground that farmers and merchants, if unchecked, will always form correct views of their own interest, and that their interest will coincide with that of the community. This theory is supported by a large view of the facts. In ancient times famines were much more frequent than they are now, because commerce was more restricted, less regular and extensive, and subject to more frequent obstructions. A free communication between different countries, by which the abundance of the one may be brought to supply the want of the other, has proved the best security against the want of necessaries, and even of comforts and luxuries.

The Athenians had laws prohibiting the exportation of corn, and requiring merchants who loaded their vessels with it in foreign ports to bring their cargoes to Athens. The public provision and distribution of corn was an important branch of administration at Rome, and very intimately connected with the public tranquillity. The regulation of the supply of corn and the trade in the article have been a fruitful subject of legislation in modern

Europe. But it is to be observed that the public solicitude and current of legislation take this direction only in populous countries, or at least those in which the population presses hard upon the means of domestic production of breadstuffs; for a country of which, like Poland, the staple export is corn, needs to take no measures for securing a supply. In agricultural countries the object of solicitude is to supply the want of arts and manufactures, as in populous and highly improved countries it is to supply the want of food.

But the laws directed to this object have been very various, and some of them contradictory; for as in Athens so in England, at one period the laws prohibited the exportation of corn; whereas at another period, and for a very long one in the latter country, a bounty was given on the exportation; and both these laws had the same object, namely, the adequate and steady supply of the article.

CORN MOTH (*Tinea granella*): small species of moth of the same genus with the clothes moths (q.v.). This moth is satiny and of a cream-white color; the superior wings marbled with gray, brown, and black, and when at rest sloping like the roof of a house, their fringe turned up behind like a tail. It abounds in spring and summer, and lays its eggs either among stored grain, or in sheaves in the field. The eggs are so small as to be invisible to the naked eye. The larva, or CORN WORM—which, for its voraciousness, is known as the *wolf*—eats into the grain, and attaches grain, together by a web. It attacks indifferently any kind of grain; sometimes also books, articles of pasteboard, woolen stuffs, and even wood. Frequent turning of heaps of corn is resorted to for the destruction of the eggs and larvæ, and salt is for the same purpose mixed with corn; the floors, walls, ceilings, beams, etc., of granaries are scrubbed with hot water and soap, or washed with lime and water, sprinkled with vinègar, etc.; and lamps are employed to attract and kill the moths.—Another very troublesome moth, also called corn moth, is *Butalis cerealella* found in some parts of Europe and America.

CORNO, *kŏr'no*, MONTÉ, or GRAN SAS'SO D'ITAL'IA, *grân-sâs'so-de-tâ'le-â:* mountain in s. Italy, the culminating peak of the Appenines; lat. 42° 27′ n., long. 13° 38′ e. It has an elevation of 9,591 ft.; and its summit is covered with snow at all seasons.

CORN'PLANTER, or GARYAN-WAH-GAH: 1732-1836, Feb. 17; b. Conewaugus, N. Y.: Seneca Indian chief. He was the son of John O'Bail, a trader, and an Indian mother, and became notorious as the leader of that portion of the Senecas which, in the old French war, entered into an alliance with the French against the English, whom he fought in the battle resulting in Braddock's defeat. During the Revolutionary war he was a persistent foe of the Americans, and by his ravages through the frontier settlements of N. Y. and in the Wyoming valley, made his name a

general terror among the whites. After the close of the war he sought the friendship of the white man, was faithful in his allegiance, incited many reforms among his subjects, and is credited with having been the first temperance lecturer in the United States.

CORN SAL'AD, or LAMB'S LET'TUCE (*Fedia* or *Valerianella*): genus of plants belonging to the nat. ord. *Valerianaceæ*, having a toothed calyx and 5-fid corolla, three stamens, and a 3-locular fruit, crowned with the calyx. The species are annual plants of humble growth, with repeatedly forked stems, and very small flowers, growing in cultivated grounds, etc. Several species, very closely resembling each other, are natives of Britain, and others are found on the continent of Europe. Some of them are frequently used as spring salads, and sometimes as a substitute for spinach, particularly the common C. S. (*F.* or *V. olitoria*), the most abundant species in Britain, the *Măche* of the French, *Rapunzcher* of the Germans. It is a favorite salad in France and Germany, though it is mucilaginous, and lacks pungency. The lower leaves are somewhat spoon-shaped, the upper leaves oblong. The plant is extremely easy of cultivation, and can be obtained in the very first days of spring, when vegetables are scarce. The VINEYARD SALAD of the Germans (*F.* or *V. carinata*), and ITALIAN C. S. (*F.* or *V. eriocarpa*), are sometimes preferred for their larger leaves or finer flavor.

CORN SAW'FLY (*Cephus Pygmœus*): species of Sawfly (q. v.), which sometimes does much mischief in cornfields, particularly to wheat and rye; the female, by means of her ovipositor, laying her eggs in the stems either below the first joint or just under the ear; the larva consuming the inside of the stalk, sometimes perforating the joints, and at last cutting it through near the ground, and undergoing its transformation into the pupa state in the stump which remains. The C. S. is almost half an inch long, of a very slender form, shining black, with some yellow markings; the larva is fat, tapering, wrinkled, and yellow. The fly is often seen on the flowers of umbelliferous plants.

CORN-SNAKE: Serpent of brownish color, sometimes 5 ft. in length; common in the southern states. Its food consists of small animals, such as mice. It is tame, and not venomous.

CORN THRIPS (*Thrips cerealium*): minute insect, not quite a line long, often abundant on flowers, and which does much mischief to grain crops, particularly late-sown wheat, insinuating itself between the chaff and the immature grain, which it causes to shrivel; also at an earlier period causing the abortion of the ear, by puncturing the stalks above the joints and sucking the juice. The corn thrips is of a shining, pitchy black, the body long, the male wingless, the female having four narrow wings, fringed with long hairs; the larva is yellow, as is also the pupa, which is active: see THRIPS.

CORNUCOPIA, n. *kŏr′nū-kō′pĭ-ă*, COR′NUCO′PIÆ, **n.** plu. *-kō′pĭ-ē* [L. *cornu*, a horn; *copĭă*, plenty]: the horn of plenty; in *sculp.*, the emblem of abundance. This emblem —regarding the origin of which several fables are told by the ancient poets—is usually placed in the hands of figures of Plenty, Liberality, etc., who are represented as pouring from it an abundance of fruits, grain, etc. It is frequently used both in architecture and in heraldry, being often represented on the arms of banks and other public institutions as pouring forth coins.

CORNULITES, n. *kŏr′nū-līts* [L. *cornu*, a horn: Gr. *lithos*, a stone]: in *geol.*, a genus of ringed shelly tubes occurring in silurian strata—probably annelid burrows. COR′NU-AMMO′NIS, n. *-ăm-mō′nĭs* [from Jupiter *Ammon*, who was worshipped under the figure of a ram's head]: a fossil shell like a ram's horn; the ammonite: see AMMONITE: AMMONITES (shells).

CORNUS, *kor′nŭs* [L.]: genus of plants, the typical one of the ord. *Cornaceæ* (q.v.).

CORNUTE, a. *kŏr′nūt* [L. *cornūtus*, provided with horns—from *cornu*, a horn]: in *bot.*, horn-shaped; horned; made a cuckold. CORNUTE, v. *kŏr-nūt′*, in *OE.*, to bestow horns upon; to cuckold. CORNU′TING, imp. CORNU′TED, pp. CORNUTO, n. *kŏr-nū′tō* [It.]: in *Shaks.*, a man horned; a cuckold.

CORN′WALL: maritime county, the s.w. extremity of England, and the southmost county in the British Isles. It is a peninsular right-angled strip of land, with the apex in the s.w., and is bounded on the e. by Devonshire, with the Tamar between, on the n. and w. by the Atlantic, and on the s. by the English Channel. From its Devonshire boundary it runs s.w., narrowing to the Land's End, the westmost part of England, in 5° 41′ 31″ w., it then bends n. to Penzance, whence it sweeps round in a s.e. direction to the Lizard Point, the southmost part of England, in 49° 57′ 30″ s. From thence it follows a n.e. course to Plymouth Sound. Greatest length in a straight line from Welcomb to the Land's End, 81 m.; extreme breadth from Welcomb to Rame Head, 46 m. Area, 1,365 sq. m., of which seven-eighths are arable, meadow, or pasture. The surface is irregular, with rapid ascents and descents. A ridge of rugged, bleak, moory hills, rising 800 to 1,300 ft., run s.w. through the centre of Cornwall. From this ridge the country slopes, and the streams flow on each side. The hill valleys are longer and wider on the s. than on the n. side of this ridge, and some of them are picturesque with corn, wood, orchards, rivulets, and meadows. The coasts are bold and rocky, and indented with many headlands and bays. The chief indentations are Plymouth Harbor, Falmouth Harbor, one of the finest in Britain, and Mount's Bay between Lizard Point and Land's End. Twenty-four m. off the latter point are the Scilly Isles. On the n.w. coast occur shifting sands, often in hills several hundred ft. high. The chief rivers are the Tamar, which runs 59

m. along the e. border, 19 m. being a tidal estuary, ending in the noble roadstead of Plymouth Sound; the Fal, which runs 20 m. south, 10 m. being tidal, and ends in the fine harbor of Carrick Road, near Falmouth; and the Allan or Camel, 29 m. long, 8 being navigable. Woods, meadows, arable land, and 140 parish churches, are said to have been submerged between Mount's Bay and the Scilly Isles. Old red sandstone, the 'killas' of the miner, covers above three-fourths of Cornwall, and is intersected by three large masses of granite in the interior of the county, with one around Land's End, and by porphyry veins and dikes, some being 50 or 80 fathoms thick, also by limestone beds. The granite on the hills is in many places worn by the weather into the form of prismatic, cubical, or spheroidal blocks, piled in gigantic cairns. These blocks sometimes form logging or logan stones. Copper and tin veins, generally 1 to 3 ft. thick, but varying from the thickness of paper to 30 ft., and of unknown depth, run through the granite and sandstone, generally from east to west. Tin also occurs in the gravel; and lead, silver, cobalt, and antimony veins in the sandstone. Lizard Point consists of mica-slate, with soapstone veins, and chinastone; and the country around, of serpentine, hornblende, and dillage rocks. Chinastone, or decomposed felspar of granite, is found near Launceston, and is a chief ingredient in retorts and crucibles made in Staffordshire. Cornwall yields one-half of the copper and nine-tenths of the tin raised in the British Isles. The great mining district extends from Dartmoor, in Devon, to Land's End, the veins and lodes occurring chiefly in granite, or killas. In the once productive Botallack copper mine, situated a few miles north of Land's End, the workings are on the very verge of the cliff, and, descending beneath the sea, are carried far beyond low-water mark. The Dolcoath mine, near Camborne, is the chief tin mine.

The climate is mild, especially in winter, but damp, with almost daily rain. Snow rarely lies more than a few days, s.w. winds prevail for nine months in the year, and furious gales are frequent. Some plants of the south of Europe, as the myrtle, tamarisk, and balm of Gilead, flourish in the open air; but fruits do not ripen well. The soil is light, gravelly, or slaty. The land is generally barren in the mining tracts, but fruitful in the valleys and on the coast The chief crops are barley, wheat, oats, and potatoes; but harvest is generally later than in the inland counties. Near Penzance, however, two crops of potatoes are got yearly. Cornwall is far more a mining than an agricultural county. The pilchard-fishery is very profitable, and employs a large number of people from July to Sep. The only exports are mining produce and fish. Landed property is much divided. The total area of Cornwall is 869,878 acres, or 1359 sq. m. The county is in six electoral divisions (Bodmin, Camborne, Launceston, St. Austell, St. Ives, Truro), each returning one member to parliament. Cornwall has ancient British antiquities, such as

rude, upright stone blocks, single and in lines, circles, barrows, and cromlechs. Many Roman coins, etc., have been found. There are many Saxon camps and earthworks. Cornwall and the Scilly Isles were the Cassiterides, or tin isles of the Phœnicians and Greeks. Vortigern made Cornwall a kindom, A.D. 446. The West Saxon kings subdued it 650. The Saxons and Danes overran it in the 9th and 10th centuries. Cornwall has remains of ancient castles and monasteries. It was erected into a duchy 1329, in favor of the Black Prince, eldest son of Edward III., who, with the succeeding Princes of Wales, had immense revenues from the county. The dukedom is still held by the Prince of Wales. See CELTIC NATIONS. —Pop. (1901) 322,857.

CORNWALL, *kawrn'wal:* town, Orange co., N. Y.; 48 m. n. of New York, 5 m. s. of Newburg, on the w. bank of the Hudson river. It contains the village and U. S. military acad. of West Point, and the village of Cornwall-on-the-Hudson, at the foot of Storm King, a noted peak of the Highlands; is supplied with numerous hotels and boarding-houses; and is a popular place for summer residents and excursion parties, on account of the magnificence of its scenery and its historical associations. Pop. (1910) 2,658.

CORNWALL, Canada, port of entry, and capital of the three united counties of Stormont, Dundas and Glengary in Ontario, and is situated at the intersection of the main line of the Grand Trunk Railway with the Ottawa and New York Railway. It has admirable shipping facilities, and is 68 miles from Montreal, 56 miles from Ottawa, and 50 miles from the Adirondacks. Cornwall has been known for years as a factory town on account of its large textile industries. It has 8 churches, Anglican, Roman Catholic, Presbyterian, Methodist and one Salvation Army barracks. There are three hospitals, six schools, a commercial college and numerous banks and public buildings. It has woolen mills, paper, pulp, cotton, flour, and planing mills, machine shops and foundries, and manufactories of pottery and agricultural implements. Building stone is quarried in the neighborhood. The city is in a rich agricultural section and has a large trade. The United States is represented by a consular agent. It has weekly newspapers and is lighted by gas and electricity. Pop. (1901) 6,704.

CORNWALL, BARRY: see PROCTER, BRYAN WALLER.

CORNWALLIS, *kawrn-wŏl'ĭs,* CAROLINE FRANCES: 1786, July 12—1858, Jan. 8; daughter of a clergyman in Kent, England. She acquired a thorough knowledge of Latin and Greek, and made herself conversant with nearly every study which occupies thoughtful men—with philosophy, theology, history, natural science, social science, politics, and even law. From an early age she carried on a correspondence on such subjects with many eminent persons; and a valuable selection from her *Letters* has been published.

Her first work, *Philosophical Theories and Philosophical Experience by a Pariah*, appeared in 1842. Miss Cornwallis also published 1847, *Pericles, a Tale of Athens;* and 1853, a prize essay on Juvenile Delinquency. She died near Tunbridge Wells. See her *Letters and Remains* (1864).

CORNWAL'LIS, Charles, Marquis: English general and statesman: 1738, Dec. 31—1805, Oct.; son of the first Earl Cornwallis. He was educated at Eton and Cambridge; served as aide-de-camp to the Marquis of Granby in the Seven Years' War; in 1776 was made a col., and four years later, gov. of the Tower of London. Though personally opposed to the war in America, he accompanied his regiment thither, and with an inferior force gained victories over Gen. Gates at Camden, 1780, Aug., and over Gen. Greene at Guilford, 1781, Mar. In the same year, however, he was forced to surrender with his whole army at Yorktown, Va. This disaster ended the final struggle of the Revolution, proved the ruin of the British cause in America, and was the occasion of much dissatisfaction, resulting in a change of ministers at home. Cornwallis, however, who was high in favor with the king, escaped censure. In 1786, Cornwallis was appointed gov.gen. of India and commander-in-chief, and in this double capacity distinguished himself by his victories over Tippoo Saib, and by his unwearying efforts to promote the welfare of the natives. His measures, however, were far from accomplishing the results which he sought. He returned from India, 1793, when he was raised to the rank of marquis. Appointed lord-lieut. of Ireland, 1798, during the Rebellion, he succeeded in putting it down, and in establishing order in a manner that gained him the good-will of the Irish people. As plenipotentiary to France, he negotiated the peace of Amiens. Reappointed gov.gen. of India, 1804, he died at Ghazipore, in the province of Benares, on his way to assume the command of the army in the upper provinces.

CORN WEE'VIL (*Calandra granaria*): a coleopterous insect of the family *Curculionidæ*, which although a small creature, not quite two lines long, is often extremely destructive to grain stored in granaries. It is much more common in southern than in northern Europe. The perfect insect is of a dark chestnut or reddish pitchy color, with short oval wing-cases, but without wings, the thorax much marked with depressed dots, the head elongated into a proboscis, the antennæ bent at right angles. The female makes a little hole in a grain of corn, and deposits an egg in it, the larva feeds on the farina; and as a single female lays many eggs, and perfect insects are soon produced from them, the mischief, unless counteracted, extends very rapidly. To arrest it has always been found extremely difficult; and the most successful method is said to be that of making a little separate heap of grain, which, being left unstirred, while the greater heap is stirred very frequently, soon becomes the refuge of the weevils, particularly if it is a

heap of barley, of which they are fondest, although they will eat any grain: in the separate heap they are killed by boiling water. Of the same genus are the rice weevil (*Calandra Oryzæ*), and a large S. American insect (*C. palmarum*), an inch and a half long, the grub of which lives in the stems of palms, and is eaten as a delicacy both by Indians and Creoles.

CORN-WORM. See CORN-MOTH.

COROLLA, n. *kŏ-rŏl′lă*, COROL, n. *kŏr′ŏl* [L. *corolla*, a small wreath or crown—from *corona*, a garland, a wreath], in Botany: the inner floral envelope of the greater number of phanerogamous plants; the second of those whorls of modified leaves which form the flower (q.v.). It is in the corolla chiefly that fine colors and the greatest delicacy and beauty of the flower are in general displayed. The modified leaves of which it is composed are called *petals* and are very various in form and number. They are also in very many plants united into a tube at the base, when the corolla is said to be *monopetalous;* and this union often extends through their whole length, leaving their number to be discerned merely in the teeth in which the corolla (bell-shaped, funnel-shaped, tubular, etc.) terminates. The petals of a flower are either similar, when the corolla is said to be *regular;* or they differ in form, often very widely, when it is called *irregular*. They not unfrequently assume remarkable and even grotesque forms. Many petals have appendages of various kinds, as *scales*, *nectaries*, *spurs*, *coronæ* or *crowns*, etc. Petals often consist of a *limb*, or expanded portion, and a *claw*, the narrower part, which is covered by the calyx, and by which the petal is attached; but sometimes the claw is wanting or obsolete, sometimes it is united with the tube of the calyx, so that the petals appear to rise out of the calyx: see CALYX and PERIANTH. COR′OLLA′CEOUS, a. *-lā′shŭs*, pertaining to a corolla; protecting like a wreath. COR′OLLET, n. *-let*, one of the florets of a corolla.

COROLLARY, n. *kŏr′ŏl-lėr-ĭ* [F. *corollaire*—from mid. L. *corollārĭŭm*, a corollary—from L. *corolla*, a little crown, a garland: It. *corollario*, the little mark or crown indicating the deduction from the proposition]: a consequence necessarily resulting from the demonstration of a proposition; an inference from a preceding proposition, so clear as to need no separate demonstration.

COROLLIFLORÆ, n. plu. *kŏ-rŏl′lĭ-flō′rē* [L. *corolla*, a small wreath; *Flora*, the goddess of flowers]: in *bot.*, the class of plants having the petals all united to form a tube, and the stamens adherent to them.

COROMANDEL COAST, *kŏr-o-măn′dėl:* often vaguely taken as the whole of the w. shore of the Bay of Bengal; extends in its proper acceptation, from Point Calimere, lat. 10° 17′ n., long. 79° 56′ e., to Gondegam, lat. 15° 20′ n., long. 80° 10′ e. It is pretty nearly co-extensive with the districts of Tanjore, Arcot, Chingleput, and Nellore, comprising, with Madras and Pondicherry, the grand bat-

tle-field of last century between England and France in India. With various estuaries and inlets, it is yet commercially of very little value, not presenting a single safe place of refuge for large vessels. So shallow, moreover, is the water for a considerable distance from the land, that ships of any size are obliged to lie several miles off; while the intermediate space, or at least that belt of it that is nearest the beach, presents a surf in which no ordinary boat can live—the only safe craft being the native catamaran (q.v.).

CORONA, n. *kŏ-rō′nă* [L. *cŏrōna*, a crown, a garland: It. *corona:* F. *couronne*]: in *arch.*, the drip, or flat lower member of the projecting part of a classical cornice: see ENTABLATURE: also the apse or semicircular termination of the choir, especially in ecclesiastical nomenclature; hence we hear of 'Becket's crown,' at Canterbury: in *meteor.*, a halo or luminous circle round the sun, moon, or a planet; in *anat.*, the upper surface of the molar teeth; in *bot.*, an appendage of the corolla in some flowers; sometimes assuming the appearance of an interior corolla very different from the true corolla, and either divided into parts resembling petals, or consisting only of one piece, and surrounding the organs of fructification like a monopetalous corolla; sometimes assuming very peculiar forms. It is often difficult to determine whether the corona is properly to be regarded as belonging to the row of petals, or to that of stamens. CORONAL, a *kŏr′ŏ-năl* [F. *coronal*—from L. *coronālis*]: belonging to a crown; pertaining to the top of the head; in *anat.*, pronounced *kŏ-rō′năl.* COR′ONAL, n. [F.—L.]. a crown; a wreath; a garland. COR′ONATED, a. *-nā-tĕd*, crowned. COR′ONARY, a. *-nėr-ĭ*, relating to the crown of the head; encircling the head like a crown; in *anat.*, applied to the arteries which encompass the heart in the manner of a garland, and supply it with blood for its nutrition. COR′ONA′TION, n. *-nā-shŭn*, the act or solemnity of crowning a sovereign; the pomp and assembly accompanying a coronation. COR′ONER, n. *-nėr*, *formerly*, an officer acting for the interest of the crown in Britain in regard to property, etc., in a country—*now* an officer whose duty is to enquire (holding an inquest) into the causes of sudden deaths, etc. COR′ONET, n. *-nĕt* [dim. from OF. *corone*, a crown]· a crown worn by princes and the nobility—each one, according to rank, having some distinguishing mark; an ornamental head-dress. COR′ONETED, a. wearing or entitled to wear a coronet. CORONIFORM, a. *kō-rŏn′ĭ-fawrm* [L. *forma*, a shape]: crown-shaped. CORONULE, n. *kŏr′ō-nūl*, the coronet or downy tuft on seeds.

CORONA, in Astronomy: phenomenal light, or halo, that surrounds the sun during a total eclipse. Halley attributed it to a distinct lunar atmosphere, while Delisle claimed that it was caused by a diffraction of the sun's light in passing the moon's sphere; but astronomers are now agreed that neither theory was correct. The corona has three distinguishing features: the chromosphere, or

inner corona, a veil of brilliant incandescent hydrogen which spreads over the face of the sun as we view it; the red flames, or prominences, caused by the undulating motion of the veil; and the coronal atmosphere, or outer corona, supposed to consist of hydrogen of inferior incandescence to that of the veil, or of meteoric particles of a system whose perihelia is in close proximity to the sun.

CORONA BOREALIS, *kŏ-rō′na bŏr-ē-ā′lĭs:* small, bright constellation near Hercules.

CORONACH: better spelling of CORANACH, which see.

CORONA′TION [see CROWN]: act, event, or ceremony, of crowning. It was, no doubt, as an adaptation of this general custom to a special use, that the practice of placing a crown on the head of a monarch at the commencement of his reign was introduced. The practice is very ancient, as appears from the record that Solomon and Ahaziah were crowned; and there is probably scarcely any country in which it has not been followed in one form or another. Generally, it has been accompanied by what was regarded as the still more solemn rite of anointing with oil, a ceremony which, from the times of the ancient Hebrews to our own, has been peculiarly significant of consecration or devotion to the service of God. The term employed for coronation in the Saxon chronicle, 'gehalgod,' is hallowed or consecrated; and it would seem that the ceremony as then performed at Kingston-on-Thames, or Winchester, was in all essentials the same as that which now takes place in Westminster Abbey. A copy of the Gospels is still in existence among the Cottonian MSS. in the British Museum, which is believed to be the identical copy on which the Saxon kings were sworn. Detailed accounts of many English coronations, from Richard I. onward, have been preserved. The Scottish coronation stone, the *Lia Fail,* or 'Stone of Destiny,' was said by tradition to have been the stone which Jacob used for a pillow, to have been brought to Ireland, and from Tara to Scotland, where it finally found a resting-place at Scone.

CORONA′TION GULF: inlet of the Arctic Ocean, the s.e. part of the landlocked and isle-studded bay that receives the Coppermine river.

CORONA′TION OATH: form of promise sworn to by monarchs when assuming the crown. The form in which the limitations imposed on the monarch in England were defined by the nation and accepted by him, was probably, from the first something equivalent to a coronation oath. Until the revolution, however, the coronation oath, like all the other guarantees for popular liberty, admitted of being tampered with; and there is in existence (Cottonian MS., Tib. E. viii.) a copy of the oath sworn by Henry VIII., interlined and altered with his own hand. To obviate the possibility of such proceedings, the existing coronation oath, altered only in consequence of the subsequent unions between England and Scotland, and Great Britain and Ireland, was fixed by stat. Will. and Mary, st. 1. c.

6. It is to the following effect, and thus administered. The Abp. of Canterbury demands of the king (or queen): 'Sir (or Madam), is your Majesty willing to take the oath?' and on the king answering, 'I am willing,' the archbishop ministereth these questions; and the king, having a copy of the printed Form and Order of the Coronation Service in his hand, answers each question severally, as follows:

Abp. Will you solemnly promise and swear to govern the people of this United Kingdom of Great Britain and Ireland, and the dominions thereto belonging, according to the statutes in parliament agreed on, and the respective laws and customs of the same?

King. I solemnly promise so to do.

Abp. Will you, to your power, cause law and justice, in mercy, to be executed in all your judgments?

King. I will.

Abp. Will you, to the utmost of your power, maintain the laws of God, the true profession of the Gospel, and the Protestant reformed religion, established by law? And will you maintain and preserve inviolably the settlement of the United Church of England and Ireland, and the doctrine, worship, discipline, and government thereof, as by law established within England and Ireland, and the territories thereunto belonging? And will you preserve to the bishops and clergy of England and Ireland, and to the churches there committed to their charge, all such rights and privileges as do, or shall appertain unto them, or any of them?

King. All this I promise to do.

The sovereign then goes to the altar, and, laying his hand upon the Gospels, takes the following oath: 'The things which I have heretofore promised, I will perform and keep, so help me God.'

The sovereign then kisses the book, and signs the oath.

The passage in the oath in which the sovereign guarantees the privileges of the Church of England, is framed in conformity with the 'Act for Securing the Church of England as by Law Established,' which is declared to be a fundamental and essential part of the Treaty of Union, and which was inserted accordingly in the act by which the Treaty of Union was finally ratified. The passage in the act which provides for the security of the Church of Scotland was framed in conformity with an 'Overture for an act for security of the Church'—of which a copy will be found in the Appendix to Defoe's *History of the Union*, p. 617. It is to the effect that, 'after the decease of her present Majesty (whom God long preserve), the sovereign succeeding to her in the royal government of this kingdom shall, in all time coming (not at the coronation), *at his or her accession to the crown, swear and subscribe* that they shall maintain and preserve the foresaid settlement of the true Protestant religion, with the government, worship, and discipline of this Church, as above (that is, by the previously recited act, 1 Will. and Mary, c. 5) established, inviolably.

The security of the Church of Scotland is thus provided for, by what may be called an accession oath, even during the period which must intervene between the accession of the sovereign and his coronation. The oath has not yet been altered to suit the disestablishment of the Irish Church.

CORONEL'LA: genus of non-venomous serpents of the family *Colubridæ*, of a small size, having a somewhat compressed and generally pentagonal body, and rather long conical tail. They inhabit the warm and temperate parts of the world. One species, *C. Lævis*, is found in the centre and south of Europe.

COR'ONER [see CORONA]: very ancient officer, in England, at the common law. He is mentioned in a charter of King Athelstan, A D. 905; and the office, like much of the common law, is acknowledged to be of Saxon origin. The name is derived from the fact that the C. had chiefly to do with pleas of the crown. In this light, the Lord Chief-Justice of the Queen's Bench is the principal C. in the kingdom, and may exercise jurisdiction in that capacity in any part of England. There are, however, particular coroners for every place in England, and in some counties, three or four, or even more. The C., formerly required to be a knight, is now usually a professional man, frequently an attorney or a medical men.

The office of C. is to some extent the only one in England charged with the investigation of crime. Where the C. cannot act, there is no authority to examine witnesses until a suspected person has been actually charged or accused before a magistrate. But even the C.'s duties are very limited; he can inquire only into the causes of violent or sudden death, and into these only when the body has been found For the duties of coroner in Scotland, see PROCURATOR-FISCAL.

In the United States each city or county usually has one or more coroners, who have the duty only of holding inquest on bodies of persons who have died by violence or accident or in a sudden and unaccountable manner. For purposes of inquest, the C. summons a jury, and a medical adviser if necessary. After inquiry into the facts, a verdict is returned, which is of the nature of a recommendation, except in cases in which crime is evidenced: in such cases, the C. can cause arrest and commitment to prison for trial.

CORONET: a little crown: see under CORONA.

CORONET, n. *kŏr'ŏ-nĕt* [Gr. *korōnē*, a crow]: one of the bones of the fore-foot of the horse.

CORONOID, a. *kŏr'ŏ-noyd* [Gr. *korōnē*, a crow; *eidos*, form]: resembling a crow's beak; in *anat.*, applied to certain processes of bones, so called from their being shaped like the beak of a crow.

COROT, *ko-ro'*, JEAN BAPTISTE CAMILLE: landscape painter; 1796–1875; son of a milliner in Paris. He was educated in the Lyceum of Rouen. After studying landscape-painting under Michellon and Victor Bertin, he

went, 1826, to Italy, where the landscape-painter Aligny exercised an influence on him long traceable in his works. His 'Vue prise à Narni' and 'Campagne de Rome,' sent, 1827, to the Paris Exhibition, displayed a selection and grouping of natural objects at variance with the realistic style then coming into vogue, and though he continued persistently appealing to the visitors of art exhibitions in Paris by 'heroic' and 'idyllic' landscapes, he obtained little recognition for 30 years. Not till he was 60 years old did he come to be a pet of the day, and see his pictures mount up to ten and twenty times their former values. With all their careless and sketchy execution, Corot's pictures evince true artistic qualities. His predilection is for shadowy scenes, for vernal and autumnal vapors, for meadows and bushy trees wrapped in a dull atmosphere. His works, therefore, lose hardly any of their effect in Français's excellent lithographs. Among his pictures in the Luxembourg Museum, of Paris, are the *Dance of the Nymphs*, *Marseilles*, and a *Sunset in the Tyrol*. *Dante* and *Hagar in the Desert* he bequeathed to the Louvre Gallery. His *Mornings* and *Evenings*, his *Rains* and *Fogs*, scattered in private collections, are to be counted by the hundred. He has had a number of imitators, 'Impressionists,' as they are called, who, however, lose themselves completely in the vague and formless.

CORPORAL, a. *kŏr′pō-răl* [L. *corporālĭs*, bodily—from *corpus*, a body: It. *corporale:* F. *corporel*]: of or relating to the body; pertaining to the animal frame in its proper sense. Cor′porally, ad. *-lĭ*, in a corporal or bodily manner. Cor′poral, or Cor′pora′le, n. *-rā′lĕ* [because of the belief that the bread and wine are the body and blood of Christ]: the fine linen cloth with which the priest covers what is left of the consecrated elements in the Lord's Supper until the service is concluded: it is called also the *Pall*, and its use is of high antiquity. The name is given also to an oblong piece of fine linen on which the sacred host and chalice are placed during mass. N. the lowest non-commissioned officer in an army.—Syn. of 'corporal': bodily; material; corporeal.

CORPORAL, n. *kŏr′pō-răl* [corrupted from F. *caporal*—from It. *caporale*, head, principal—from L. *caput*, the head]: in *milit.*, the lowest non-commissioned officer in a company of troops, ranking between a private and a sergeant: when the regiment is formed as a corps, he has no function different from the private soldier. In barracks or camp, however, he exercises certain disciplinary control over the privates. On *shipboard*, a ship's corporal is a petty-officer under the master-at-arms; to aid in teaching the seamen the use of small-arms, to guard against the smuggling of spirits on board, to extinguish the fires and lights at a given signal, and to keep order below at night. Cor′poralship, n. the office. Lance-corporal, an asst. corporal, one who performs the duties, and possesses the authority, but does not receive the pay of a corporal. Corporal-major, a non-commissioned officer of the highest rank in a troop of the household cavalry in the Brit. army.

COR'PORAL PUN'ISHMENT: see FLOGGING.

CORPORATE, a. *kŏr'pō-rāt* [L. *corpŏrātus*, made or fashioned into a body—from L. *corpus*, a body, the flesh: It. *corpo:* F. *corps*]: united in a body or community by law, and empowered to transact business as an individual; in *OE.*, united; general. COR'PORATELY, ad. *-lĭ.* COR'PORATENESS, n. COR'PORA'TION, n. *-rā'shŭn*, a number of individuals formed into one body and authorized by law to act as one person; the municipal authorities of a town or city.

CORPORA'TION, in Law: a company or body authorized to act as one person, and to perpetuate its existence by the admission of new members. Without such legal authority, the acts of the society would be regarded only as the acts of the individuals, and the property of the society would descend to the heirs of the individual members. In England, but not in the United States, there is known a 'corporation sole,' which consists of one person, and his successors, who are by law invested with the same capacities as a C. aggregate: the sovereign is a C. sole, and so is a bishop and the vicar of a parish; for these, in the eye of the law, never die, and each successive holder of the office takes the property belonging to it, neither by conveyance nor by ordinary succession, but is vested in it by his mere holding of the office.

For particulars as to formation of corporations, see JOINT-STOCK COMPANY. A C. always receives a corporate name, by which it sues and is sued as an individual, and it must possess a common seal, the affixing of which is the only competent way of affixing the signature of the corporation. The majority of the members of a C. are entitled to act in its name, and may, by a by-law, even delegate—except in the case of municipal corporations—the power of acting in its name to a certain number of its members. For the acts of the C., none of its members are personally liable. A C. may hold lands, and may be possessed of chattels, but cannot be either a trustee-proper or an executor.

Corporations are divided into public and private: for the public, which are ordinarily municipal or governmental, see MUNICIPALITY. The private may be divided into civil and eleemosynary. Private civil corporations include some universities, colleges of physicians and surgeons, learned societies, and many trading companies incorporated. Eleemosynary corporations are for the administration of funds for charitable and pious purposes, such as hospitals, some colleges, etc. Eleemosynary corporations may be 'visited' or inspected with legal superintendence for securing their main object, by the founder and his heirs, or such persons as the founder appointed to be visitors; and in default of such persons, or of the founder's heirs, the courts may in certain cases act as visitors. Private corporations cannot be dissolved at the mere will of the creative power, but only for cause shown; such as misdirection of funds, or non-fulfilment of contract. The laws of the

different States vary concerning corporations, as to details. A C., unless prohibited by special enactment, may act beyond the limits of the State in which it is located. The property of a C. is subject to control by the U. S. Court of Bankruptcy.

A C. may be dissolved by the death of all its members, or of such number as leaves not enough to make new elections in the way the charter requires; by forfeiture of the charter, through breach of its conditions; by surrender of the charter; or by legislative action. In all such cases, the lands of the C. revert to their several donors, and the debts due by or to the C. are extinguished.

For public governmental corporations, see MUNICIPALITY: for private trading corporations, see BANK: JOINT-STOCK COMPANY: PARTNERSHIP.

As to public corporations in Scotland, see BURGH: TOWN COUNCIL: FRIENDLY SOCIETIES.

CORPOREAL, a. *kŏr-pō'rĭ-ăl* [L. *corpo'rĕŭs*, composed of flesh—from *corpus*, a body, *corpŏrā*, bodies]: having a body or substance; material, as opposed to spiritual or immaterial. CORPO'REALLY, ad. *-lĭ*. CORPO'REAL'ITY, n. *-ĭ-tĭ*, state of being a body; opposed to spirituality. CORPO'REALISM, n. *-ĭzm*, corporeal character; the belief and teachings of corporealists CORPO'REALIST, n. *-ăl-ĭst*, one who denies the existence of spirit as separate from body. COR'PORE'ITY, n. *-pō-rē'ĭ-tĭ*, bodily substance; state of having a body.

CORPOSANT, n. *kor'pō-zănt* [Sp. *cuerpo*, a body; *santo*, holy]: a luminous electric body often observed on dark stormy nights skipping about the masts and rigging of a ship; the same phenomenon has been seen on land.

CORPS, n. *kōr*, also CORPS, n. plu. but pronounced *kōrz* [F. *corps*, a body—from L. *corpus*, a body: It. *corpo*]: a body of soldiers; any division of an army. CORPS DIPLOMATIC, n. the whole body of ministers or diplomatists at any court. CORPS-PRESENT a funeral gift to the church, in recompense, as was pretended, for anything that had been omitted or withheld by the deceased. CORPS-VOLANT, [F.—*lit*, a flying body]: a body of soldiers intended for rapid movement. CORPSE, n. *kŏrps*—in *poetry*, CORSE, n. *kŏrs*, the dead body of a human being. CORPSE-COOLER, a temporary coffin or shell into which a body is laid to delay the natural decay by exposure to an artificially cooled atmosphere. CORSELET, or CORSLET, n. *kŏrs'lĕt* [F.]: light armor for the body: such front body-armor for pikemen was made usually of leather, and was pistol-proof. CORSET, n. *kŏr'sĕt* [F.]: stays; a quilted waistcoat for women.

CORPS D'ARMÉE, *kōr dar-mā'*, in the military system of the greater continental European states: an organization of the forces in time of peace. The whole military strength is divided into several corps, each complete in itself as an army, with everything needful for service, staff and artillery park included. The English army is now distributed into 15 army corps, stationed in as many territorial centres. The French army had, in 1886, 24 *corps d'armée;* which have

been increased in strength by the recent military re-organization. Germany had in the same year 18 *corps d'armée.* In the Austrian service, the normal number of *corps d'armée* is 13. The military strength of Russia, as finally settled, 1876, is distributed over 14 military districts. The term is not in use in the U. S., in time of peace: the troops are assigned in a few great territorial divisions, known by geographical names.

CORPSE: see under CORPS.

CORPSE'-CANDLE: see CANDLE.

CORPULENCE, n. *kŏr'pū-lĕns,* or COR'PULENCY, n. *-lĕn-sĭ* [F. *corpulence*—from L. *corpulentĭă,* corpulence—from *corpus,* a body]: bulkiness of body; excessive fatness; fleshiness COR'PULENT, a. *-lĕnt* [F. *corpulent,* corpulent, gross—from L. *corpulentus,* fat]: fleshy; bulky; fat. COR'PULENTLY, ad. *-lĭ.*—SYN. of 'corpulent': stout; fat; lusty; brawny; robust; large; pursy; obese.

CORPUS, n. *kŏr'pŭs,* CORPORA, n. plu. *kŏr'pŏ-ră* [L. *corpus,* body, *corpŏră,* bodies]: matter or body of whatever kind. CORPUS CHRISTI, *kŏr'pŭs krĭs'tī* [L., body of Christ], or FEAST OF THE BLESSED SACRAMENT: the most splendid festival of the Rom. Cath. Church; instituted 1264, in honor of the Consecrated Host in the Eucharist, and with a view to its adoration, by Pope Urban IV., who appointed for its celebration, Thursday, the 11th day after Whitsunday or Pentecost, and who promised to all the penitent who took part in it, indulgence for a period of 40–100 days. The festival is distinguished chiefly by magnificent processions. In France it is known as the *Fête Dieu.*

CORPUS CHRISTI, *kawr'pŭs krĭs'tī,* or *tē,* or BEN'ET COLLEGE, Cambridge: founded by two guilds or fraternities of townspeople—the guild of Corpus Christi, who had their prayers at St. Benedict Church; and the guild of the Blessed Virgin, who prayed at St. Mary's. These were united, 1352, and a small college erected by them. Abp. Parker added largely to the endowments of this college, and bequeathed to it his valuable manuscripts, among which are the only authentic manuscript copies of the Thirty-nine Articles of the Church of England. Of the 12 fellows, all except 4 must take holy orders. There are 31 scholarships, some of considerable value, given to the students who most distinguish themselves at the annual examinations. Among the eminent men of this college were Hugh Latimer, Abps. Parker and Tennison, Fletcher the dramatist, and Gough the antiquary.

COR'PUS CHRIS'TI, Oxford: college, founded, 1516, by Richard Fox, Bp. of Winchester, under a license from King Henry VIII. The statutes were issued 1517. The foundation consisted of 20 fellows and 20 scholars; of whom the fellows were to be elected from the scholars, while the scholars were to be elected from certain specified counties. Two peculiarities marked this foundation. First, the usual rules of life and discipline were enforced with peculiar severity; and, second, the object of the college was

expressly connected with the studies of the age. Classical literature was for the first time distinctly mentioned. The subjects of the lectures were enjoined to be, not the old routine of divinity, and the two philosophies, but divinity, humanity and Greek. Incessant industry in these pursuits was inculcated by the founder, and the fellows were even forbidden to accept the proctorship, lest the avocations of that office should interfere with their proper duties. The object and the stringency of these regulations called forth the celebrated encomium of Erasmus, that what Colossus was to Rhodes, what the Mausoleum was to Caria, that C. C. College would be to the kingdom of Great Britain. This prediction has hardly been fulfilled. The rules of the founder have been gradually set aside by acts of parliament, by custom, and by injunctions of the visitor. Of the three university lectureships contemplated by the founder, one was never founded at all, and the other two were merged in the college fellowships and tutorships. And, lastly, the college has suffered greatly from the severe restrictions imposed by statute upon the elections to fellowships. In virtue of the powers conferred by 17 and 18 Vict. c. 81, important changes have been effected by the college working in harmony with the commissioners. Both fellows and scholars are now elected without any restrictions as to place of birth. The fellowships are still 20 in number; value, rather more than £300 a year. The college is now one of considerable eminence. Two of the fellowships are permanently attached to the two professorships of Latin and Jurisprudence, the professors being admitted honorary fellows of Corpus, and each receiving from its revenues a sum of £600 a year The scholarships are 24 in number, tenable for five years, and of the annual value of £80, with rooms rent free; besides seven exhibitions, recently instituted, to be competed for annually by the commoners of the college. There are 22 benefices in the gift of this college; and in 1881, there were about 280 names on the college books.

CORPUSCLE, n. *kŏr-pŭs'kl*, or CORPUSCULE, n. *kŏr-pŭs'kūl* [L. *corpus'culum*, a little body, an atom, a particle —from *corpus*, a body: It. *corpusculo;* F. *corpuscule*, a minute body]: a small body; a particle. CORPUS'CULAR, a. *-pŭs'kū-lėr*, relating to small bodies or particles. CORPUS'CULA'RIAN, a. *-lā'rĭ-ăn*, material; physical; atomic: N. an advocate for the atomic or material philosophy; a materialist. CORPUSCULATED, a. *kŏr-pŭs'kū-lā-tĕd*, applied to fluids which, like the blood, contain floating solid particles or corpuscles.

COR'PUSCLES, BLOOD: see BLOOD.

CORPUS'CULAR ACTION—and THEORY: see ATOM: ATOMIC THEORY.

COR'PUS DELIC'TI, in Criminal Law: the body or substance of the charge—term used especially in Scotland. Before a conviction can take place, the fact libelled must be proved—*e.g.*, before a man can be convicted of mur-

der, it must be clearly made out that there was a murder; and it is this fact that is called the corpus delicti: see CRIMINAL LAW.

COR'PUS DOCTRINÆ, *dŏk-trī'nē:* [Lat. body of doctrine]: in German ecclesiastical history, the name given to each of several collections of theological writings promulgated by various German Protestant churches during the 16th century. Among the most important of these collections were the *Corpus Misnicum* or *Philippicum* (1559), enforced by the elector of Saxony, containing the Apostles', Nicene, and Athanasian creeds, the Augsburg Confession, and Melanchthon's *Loci Communes*; the Pomeranian of 1561; that of Nuremberg of 1573; and the Hamburg (1560), Brunswick (1563), Pomeranian (1564), Prussian (1567), Brunswick-Wolfenbüttel (1569), Saxon (1570, called Corpus Thuringicum); and others of a Lutheran character. These were all superseded in 1580 by the *Formula of Concord.*

COR'PUS JURIS: see LAW.

COR'PUS JURIS CANONICI: see CANON LAW.

CORRACLE: see CORACLE.

CORRAL, n. *kŏr-răl'* [Sp.]: in *S. Amer.*, an inclosure for cattle; a kraal: V. to put within an inclosure; to confine. CORRAL'LING, imp. CORRALLED', pp. *-rāld'*.

CORREA DA SERRA, *kor-rā'â dâ sĕr'â,* JOSÉ FRANCESCO: 1750–1823, Sep. 11; b. Serpa, Portugal: politician and botanist. He was educated and took priest's orders in Rome; founded and became perpetual sec. of the Portuguese Acad. of Sciences at Lisbon 1777; fled to France after trouble with the Inquisition 1789, and to England for protecting a Girondist; became member of the Royal Soc. and sec. of legation 1797; removed to Paris 1802, and to the United States 1813; was prof. of botany in Philadelphia 1814, and Portuguese minister 1816–20, when he was recalled, appointed member of the financial council in the constitutional govt. and elected to the cortes.

CORRECT, v. *kŏr-rĕkt'* [F. *correct*—from L. *correctus*, improved, amended—from *con, rectus*, set right]: to amend; to make right; to punish: ADJ. free from faults; right; conformable, to truth; accurate. CORRECT'ING, imp. CORRECT'ED, pp. CORREC'TION, n. *-rĕk'shŭn* [F.—L.]: the act of correcting; amendment; punishment. CORREC'TIONAL, a. *-ăl*, having a tendency to correct. CORREC'TIVE, a. *-tĭv*, having power to correct: N. that which corrects. CORRECT'LY, ad. *-lĭ*, accurately; exactly; not disfigured by faults. CORRECT'NESS, n. *-rĕkt'nĕs*, accuracy; exactness; conformity to established rules or usages. CORREC'TOR, n. *-tẽr*, one who.—SYN. of 'correct, a.': exact; accurate; precise; nice; particular, punctual; regular; faultless;—of 'correct, v.': to reform; mend; rectify; chasten; chastise; purify; reprove; discipline; improve.

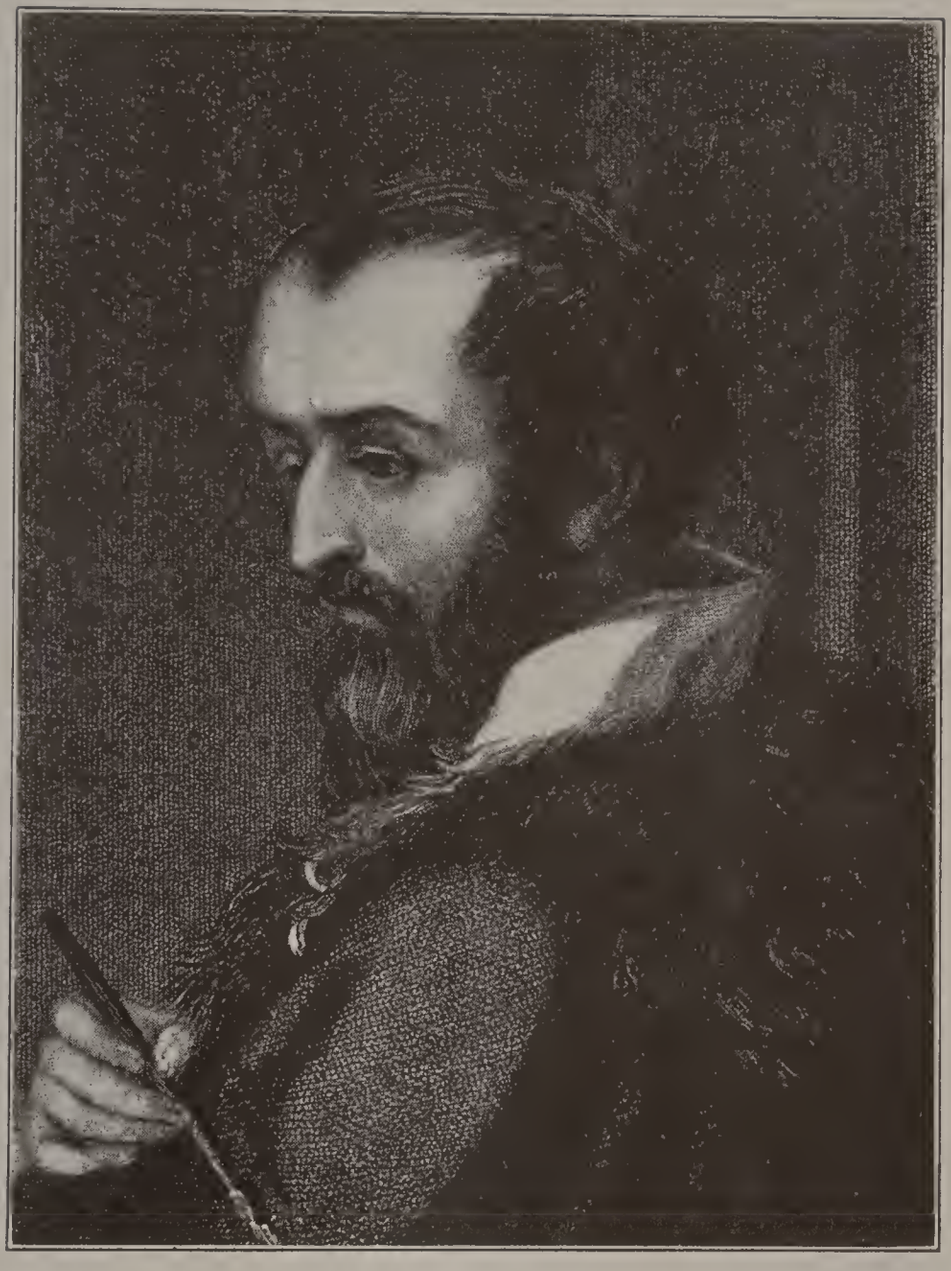
CORREC'TION, HOUSE OF: prison for reformation of petty offenders: see PRISON: REFORMATORY SCHOOLS.

CORREGGIO, *kŏr-rĕd'jō:* town of n. Italy, midway between Parma and Modena: now called Reggio. It is the birthplace of the painter surnamed Correggio (q.v.). Pop. 2,700.

CORREG'GIO, Antonio Allegri: celebrated Italian painter, named from the place of his birth: 1493 (or 4)–1534, Mar. 5; b. Correggio (now Reggio); son of a tradesman of some property. His father had him carefully educated, and instructed in the rudiments of art, by an uncle, Lorenzo Allegri, a painter of small merit. How much he owed to his teacher is uncertain. He was the first among the moderns who displayed that grace and general beauty and softness of effect, the combined excellences of design and color with taste and expression, for which he is still unrivalled. His chiaroscuro is perfect. Almost before he had seen the great masters he became a master in a style all his own; and was the founder, or rather his imitators were founders for him, of what is called by some the Lombard, by others, the Parma school of painting. On first beholding, at Bologna, Raphael's glorious picture of St. Cecelia, he is said to have exclaimed: 'Anch' io sono pittore' (I, too, am a painter). But this story is doubted.

There was long a tradition that Correggio lived in poverty, unaided but by his own genius; and it is remarkable that Vasari, who lived at the same time, in his *Lives of the Painters*, records only vague rumors regarding Correggio's life; and that Annibale Caracci, 50 years after his death, writes: 'I rage and weep to think of the fate of this poor Antonio: so great a man—if, indeed, he were not rather an angel in the flesh.' This belief, so prevalent in his own day, now refuted by recent researches, proves how retired and simple must have been his life. That he was in high estimation in his later days, is proved by his signature affixed to the deed of marriage of the Lord of Correggio, 1533.

At the age of 18, Correggio painted an altar-piece, the *Madonna di San Francesco*, now in the Dresden Gallery, which is rich in pictures by Correggio; the most famous of which are the *Notte* (Night), lighted only by the celestial splendor beaming from the head of the infant Savior —Vasari calls it 'quite wonderful'—and the famous *Magdalen* one of the most admired pictures in the world. For the cupola of the church San Giovanni at Parma, he painted an *Ascension* in fresco, and over the high-altar a *Coronation of the Virgin*, now known only through copies and engravings. He also decorated elaborately in fresco the cathedral there, for which he received 1,000 ducats worth about $17,500. In the Louvre are two pictures—the *Marriage of St. Catharine*, and the *Antiope;* in the Florence Gallery, three—one the *Madonna on her Knees Adoring the Infant;* in the Naples Gallery, three—one a lovely Madonna, called, from its oriental character, *La Zingarella* (the Gipsy), said to be a likeness of Correggio's wife; at Vienna, two; at Berlin, three; at Parma, five—



CORREGGIO.

the most celebrated is the *St. Jerome;* and in the British National Gallery, a Madonna, known as the *Vierge au Panier*, the *Education of Cupid*, and the famous *Ecce-Homo*, purchased by the British government for £11,500.

CORREGIDOR, n. *kŏr-rĕj-dōr′* [Sp.]: in Spain, principal magistrate of the town. He is appointed by the king. The corregidor is also a Portuguese functionary, but, unlike his Spanish brother, has not the double power of governing and administering justice, but only the latter.

CORREGIDOR; a small island of the Philippine archipelago at the entrance to Manila Bay.

CORRELATE, n. *kŏr′rĕ-lāt′* [L. *con*, together; *relātus*, carried or brought back]: one that stands in a reciprocal relation, as father and son: V. to stand in a reciprocal relation, as father and son: to relate or refer to mutually. COR′RELA′TING, imp. COR′RELA′TED, pp. COR′RELA′TION, n. *-lā′shŭn* [F.—L.]: mutual relation. CORREL′ATIVE, a. *rĕl′ă-tĭv* [F. *corrélatif*]: having a reciprocal relation: N. that which has a reciprocal relation; relationship or dependence, as father to son, light to darkness; in *gram.*, the word or words to which a pronoun refers. CORREL′ATIVELY, ad. *-lĭ.* CORREL′ATIVENESS, n. *-tĭv-nĕs.* CORRELATION OF FORCES, in *phys.*, the mutual relationship of the various forces in constant operation around us, all mutually convertible into each other. See FORCE.

CORRESPOND, v. *kŏr′rĕ-spŏnd′* [F. *correspondre*—from mid L. *correspondērĕ*,—from L. *con, respondērĕ*, to answer or promise—*lit.*, to answer or promise to one another]: to suit; to agree; to be proportionate; to hold intercourse by letter. COR′-RESPON′DING, imp. COR′RESPON′DED, pp. CORRE-SPONDENCE, n. *kŏr′rĕ′-spŏn-dĕns* [F. *correspondance*]: suitableness; fitness; intercourse by letters or otherwise; the letters so sent. COR′RESPON′DENT, a. *-dĕnt*, adapted; suitable: N. one who holds intercourse by letters. COR′RESPON′-DENTLY, ad. *-lĭ.* COR′RESPON′DINGLY, ad, *-dĭng-lĭ.* COR′-RESPON′SIVE, a. *-sĭv*, answerable; adapted to anything.—SYN. of 'correspond': to match; tally; fit; answer; suit; write; address.

CORRESPONDING POINTS, in vision: those points on the retinas of the two eyes which are usually excited at the same time by rays of light from a single point in external space. If the foveas are regarded as the centers of the retinas, all points on the right of one retina have corresponding points on the right side of the other retina. Sensations aroused by the excitation of corresponding points usually fuse into single percepts.

CORRÈZE, *kōr-rāz′:* dept. of France, formed out of part of the old province of Limousin, and taking its name from an affluent of the Vezère—the Corrèze, which traverses the dept. from n.e. to s.w. The chief rivers are the Dordogne, the Vezère, and the Corrèze. The surface of

the dept. is mountainous, especially in the n. and e., where it is broken by offsets from the Auvergne mountains, which, in some parts attain a height of 4,000 ft. above the sea. The lower slopes are clad with forests, but the district is in general sterile. In the s. and s.w., however, the soil yields wheat, oats, barley, rye, maize, etc. Wine also is produced, but of poor quality. Minerals, particularly coal, iron, lead, alabaster, and granite of various colors, are found in considerable quantities. The dept. is divided into the three arrondissements of Tulle, Brive, and Ussel. Tulle is chief town.—Pop. of Corrèze (1881) 311,478; (1901) 318,422.

CORRIB, Lough, *lŏch kŏr′ĭb:* lake, third in size in Ireland, in the north of Galway. It is of very irregular shape, 27 m. long from n.w. to s.e., and 1 to 6 broad; 68 sq. m. It is between 28 and 31 ft. above sea-level. From its s. end, 4 m. n. of Galway, it discharges its surplus waters by Galway River into Galway Bay. It receives the waters of Lough Mask, at its n. end, through the Pigeon Hole and other caves, as well as those of the Clare and other smaller rivers.

CORRIDOR, n. *kŏr′rĭ-dōr* [F. *corridor*—from It. *corridore:* Sp. *corredor*, a runner, a gallery: comp. Gael. *coire*, a circle; *dorus*, a door]: a gallery or a passage in a mansion from which many doors open into various apartments; a gallery round a building; a covered way; a long passage or aisle.

CORRIE, or Corri, n. *kŏr′rĭ* [Gael. *coire*, a caldron, a pot]: in *Scot.*, a hollow mountain recess, open on one side only.

CORRIE, *kŏr′rĭ*, Daniel: 1777–1837, Feb. 5; b. England: Bp. of Madras. He went to India as a missionary of the Established Church, 1806, and was associated with Buchanan, Heber, Martyn, and Turner. As soon as he became proficient in the language, he began translating Sellon's abridgment of the Scriptures into Hindostanee, at the same time translating and publishing the prayers and homilies of the church. He also compiled outlines of ancient history, for the use of schools in India. He was appointed archdeacon of Calcutta 1823, and consecrated bp. of Madras 1835.

CORRIENTÉS, *kŏr-rĕ-ĕn′tĕs* [in English, *currents*]: province of the Argentine Republic, between Entre Rios on the s., and the republic of Paraguay on the n., having the Parana on the n. and w.; lat. 27°—30° s., and long. 57°—59° w.; about 60,000, sq. m. The north is undulating and fertile; and the south, besides being generally swampy, is partly covered by Lake Thara. The products are maize, cotton, sugar, indigo, tobacco, and a species of silk. Pop. (1882) 204,000; (1892) 216,000; (1900) 277,041.

CORRIENTES: city, cap. of the state of Corrientes in the Argentine Republic; lat. 27° 27′ s., and long. 58° 46′

w., near the confluence of the Parana and the Paraguay. It takes its name from the rapids, which are said to be as decidedly a turning-point in the climate of the country as in the navigation of the river. Pop. (1901) 17,000.

Corrientes has various other applications in Spanish America, indicating several capes in Cuba, Mexico, and New Granada.

CORRIEVREKIN, *kŏr-rė-vrĕk'kėn*, or CORRYBRECHTAN, *kŏr-rė-brĕch'tan*, or GULF OF BRECHAN: whirlpool or dangerous passage a mile broad, off the w. coast of Argyleshire, Scotland, in the strait between Scarba and Jura isles. It is occasioned by the meeting of tides (often running 12 or 14 m. an hour) from the n. and w., in the narrow passage into the Sound of Jura, round a pyramidal rock, which rises with rapid slope from a considerable depth to some fathoms from the surface This rock forces the water in various directions. In stormy weather, at flowtide, vast openings form in the water, immense bodies of water tumble headlong as over a precipice, then rebounding from the abyss, dash together and rise in spray to a great height. The noise is heard over the isles around. The water is smooth for half an hour in slack-water.

CORRIGAN, MICHAEL AUGUSTINE, American Roman Catholic prelate: b. Newark, N. J., 1839, Aug. 13; d. New York, 1902, May 5. He made his elementary studies in a private school in Newark and at the age of 14 was sent to Saint Mary's College, Wilmington, Del. In 1855 he began his advanced studies in the historic seminary of Mount St. Mary's, Emmetsburg, Md. Here, in his preparatory course, he showed remarkable abilities, taking the class prizes in Greek, Latin, mathematics, history, and French. In the spring of 1859 he graduated from Mount Saint Mary's, and in the fall of the same year entered the American College in Rome. He was the first student from the United States who asked for admission to this now famous college. In Rome, 1863, Sept. 19, he was ordained a priest for the diocese of Newark, United States, but remained in Rome another year for further study. On 1864, Sept. 5, he began his duties in the Newark diocese, and was soon appointed by his bishop as professor of dogmatic theology and sacred Scripture at Seton Hall Seminary, South Orange, N. J. As vacancies occurred in the seminary he was promoted until in 1868 he was made president of the institution. In 1873 he was elevated to the office of bishop of Newark, remaining at the head of this diocese for seven years. In its management his executive ability proved to be equal to his charity. He liquidated debts, established institutions for the waifs, the defectives, and for the protection of the young whose morals might be in danger. The home for the sick was not forgotten, and the schools received substantial aid and encouragement. The number of organized parishes increased, and when, in 1880, he was called to the position of coad-

jutor of Cardinal McCloskey, archbishop of New York, left Newark only after earnestly requesting that he might be allowed to remain; but the Pope selected him and he obeyed. In 1880, October, he received the papal bulls appointing him archbishop of Petra and coadjutor to the archbishop of New York, with the right of succession. Upon the death of Cardinal McCloskey, Archbishop Corrigan became archbishop of New York, and the pallium was conferred upon him 1881, March 4. This charge he retained until his death. During the years he was at the head of the second largest diocese in the world, everything possible was done to promote spiritual and intellectual life and to care for the poor, the sick, and the homeless. Saint Joseph's Seminary, at Dunwoodie, near the city, is one of the finest ecclesiastical seminaries in the country. Its chapel was the gift of the archbishop. He was looked upon by all men who knew the forces ever agitating the metropolitan city as 'a great conservative force, maintaining the social order of civilization against all socialistic and anarchistic attacks, maintaining the rights of property, on which our homes and the rewards of honest toil and hopes of honorable ambition all depend.'

CORRIGENDA, n. plu. *kŏr'rĭ-jĕn'dă* [L.—from *corrĭgo*, I set right]: things to be corrected.

CORRIGIBLE, a. *kŏr'rĭ-jĭ-bl* [F. *corrigible*—from L. *corrigĕrĕ*, to set right, to correct]: that may be corrected or reformed; subject to or deserving of punishment.

CORRIVAL, n. *kŏr-rī'văl* [*con* and *rival*]: in *OE.*, a rival; a competitor: V. to vie with; to emulate.

CORROBORATE, v. *kŏr-rŏb'ŏ-rāt* [L. *corroborātus*, strengthened very much—from *con*, *robur*, strength: It. *corroborare:* F. *corroborer*]: to strengthen; to confirm. CORROB'ORATING, imp. CORROB'ORATED, pp. CORROB'ORANT, a. *-rănt*, having the power of giving strength: N. in *med.*, that which gives strength to the body when weak. CORROB'ORA'TION, n. *-rā'shŭn* [F.—L.]: the act of strengthening or confirming. CORROB'ORATIVE, a. *-rā-tĭv*, strengthening; having the power to confirm.

CORRODE, v. *kŏr-rōd* [F. *corroder*—from L. *corrōdĕrĕ* to gnaw to pieces—from *con*, *roděrĕ*, to gnaw: It. *corrodere*] to eat away by degrees; to prey upon; to consume. CORRO'DING, imp.: ADJ. eating or wearing away; gnawing. CORRO'DED, pp. CORRO'DENT, a. *-dĕnt*, having the power of corroding: N. that which eats away. CORRO'DIBLE, a. *-dĭ-bl*, that may be eaten away. CORRO'DOBIL'ITY, n. *-bĭl'ĭ-tĭ*. CORRO'SIVE, a. *-rō'sĭv* [F. *corrosif*—from L. *corrosīvus*—from *con*, *rōsus*, gnawed]: consuming; wearing away; fretting; vexing: N. that which corrodes. CORRO'SIVELY, ad. *-lĭ*. CORRO'SIVENESS, n. the quality of corroding or eating away. CORRO'SION, n. *zhŭn* [F.—L.]: the act of eating away by degrees. CORRO'SIBIL'ITY, n. *-sĭ-bĭl'ĭ-tĭ*. CORROSIVE SUBLIMATE, *-sŭb'lĭ'māt*, popular name for Bicloride of Mercury (q.v.), a virulent poison.—

SYN. of 'corrode': to gnaw; waste; wear away; rust; canker; consume; impair.

CORRUGATE, v. *kŏr'rû-gāt* [L. *corrūgātus*, made full of wrinkles—from *con*, *rūga*, a wrinkle: It. *corrugare*]: to wrinkle or purse up: to furrow or form into ridges, as sheets of metal: ADJ. in *bot.*, shaped into wrinkles or folds; wrinkled. COR'RUGATING, imp. COR'RUGATED, pp.: ADJ. covered with folds; having a crumpled and uneven surface. COR'RUGANT, a. having the power of contracting into wrinkles. COR'RUGA'TION, n. *-gā'shŭn*, contraction into wrinkles. COR'RUGATOR, n. *-tėr*, he who or that which.

COR'RUGATED IRON: sheet-iron formed into ridges, thus gaining great additional strength or stiffness—like a frill of linen. The method is applied to various metals; especially to 'galvanized iron,' an improper name for sheet-iron coated with zinc.

The sheets of metal are passed between rollers, the surfaces of which are formed into rounded grooves and ridges, the ridges of one roller filling the groves of the other. The metal, in passing between these, is compressed into a waving form, or corrugated. It will be easily understood that a piece of sheet-metal, of given size and thickness, if rolled up to form a tube, will resist a much greater bending strain than when flat. Now the curves of the corrugation may be regarded as a series of half-tubes, and the additional strength is due to the application of the same principle: see STRENGTH OF MATERIALS. Walls and roofs of temporary buildings are now extensively made of this material. Railway sheds, emigrants' houses, temporary churches, store-rooms, and sheds for dockyards, etc., are among common applications. Mr. Francis, of New York, has applied the principle to the construction of light boats, the strength of which, and their power of resisting violent blows, such as boats are subject to on landing through a surge, is said to be remarkably great. On this account, they are proposed to be used for life-boats, ships' boats, etc. They are made by stamping the metal in enormous dies, of the shape and size of the boat, and grooved for the required corrugations. Small boats thus constructed require no internal bracings, the requisite rigidity and strength being given entirely by the corrugations.

CORRUPT, v. *kŏr-rŭpt'* [L. *corruptus*, corrupted—from *con*, *ruptus*, broken]: to turn from a sound to a putrid state; to taint; to deprave; to pervert; to bribe: ADJ. unsound; tainted; vitiated; not genuine. CORRUP'TING, imp. CORRUP'TED, pp.: ADJ. made or become corrupt. CORRUP'TER, n. that which or one who. CORRUP'TIBLE, a. *-tĭ-bl* [F.—L.]: that may be corrupted: N. in *Scrip.*, the human body. CORRUP'TIBLY, ad. *-blĭ*. CORRUP'TIBIL'ITY, n. *-bĭl'ĭ-tĭ*, possibility of being corrupted. CORRUP'TIBLENESS, n. *-bl-nĕs*. CORRUP'TION, n. *-shŭn*, putrescence; wickedness; perversion; depravity; bribery; debasement. CORRUP'TIVE, a. *-tĭv*, tending to corrupt or vitiate. CORRUPT'LY, ad. *-rŭpt'lĭ*. CORRUPT'NESS, n. state of being

corrupt.—Syn. of 'corrupt, v.': to contaminate; defile; pollute; putrefy; vitiate; deprave; debase; entice; rot; spoil; adulterate; destroy; debauch; infect.

CORRY, *kŏr'rĭ:* city, Erie co., Penn., at the junction of the Philadelphia and Erie and the N. Y. Penn. and Ohio railroads, 37 m. s.e. of Erie; and the terminus of the Oil Creek and Alleghany and the Buffalo, Pittsburg and Corry railroads. Its settlement was due to the discovery of petroleum, and the first building was erected 1861, Aug. The town was incorporated as a city 1866. It has churches, a high school, opera house, library, park, national and savings banks, daily and weekly newspapers, a large oil refinery, tanneries, a blast furnace, and manufactories of stationary engines, furniture, mowers, and reapers, barrels, etc. Pop. (1880) 5,277; (1900) 5,369.

CORSAC, *kawr'sak* (*Canis* or *Cynalopex Corsac*): animal of the dog family (*Canidæ*), found in the deserts of Tartary and in India. In size, it resembles a small fox, but is more slender in body and limbs; it has long and pointed ears, a bushy tail, and is of a reddish or yellowish color; the form of the head resembles that of the fox. It lives in large communities, burrows, prowls during the day, and not during the night like foxes, and is believed to feed chiefly on birds and their eggs.

CORSAIR, n. *kär'sär* [F. *corsaire—from* Prov. *corsari*—from It. *corsaro*, a pirate—from Sp. *corsa*, a cruise or course at sea: L. *cursus*, a voyage: comp. Gael. *corsair*, a coasting vessel; *corsa*, the coast—*lit.*, one who makes the course or cruise around the coast]: one who scours the sea in an armed ship for the purpose of plundering merchant vessels; a robber on the sea; a pirate; applied especially to the pirates who in former times sailed from Algiers, Tunis, Tripoli, and the ports of Morocco, and were the terror of merchantmen in the Mediterranean and the neighboring parts of the Atlantic. At the commencement of the 19th century nearly all nations paid tribute to the Barbary states, but the insolence of the dey of Algiers toward Capt. Bainbridge, on his arrival there in 1800, September, with the annual tribute, led to remonstrances on the part of of the United States. In 1801, Yussuf, bey of Tripoli declared war against the United States, from dissatisfaction with the amount of tribute, and a powerful squadron was sent by the United States to the north African coast. Tripoli was bombarded in August and September 1804; and on 1805, June 3, a treaty of peace was concluded between the two countries. In 1815 war was declared by Algiers on similar grounds; but Commodore Decatur soon appeared in its waters with a large squadron, captured several vessels, and in a few days compelled the dey to sign a treaty of his own dictation on his quarter deck. He next humbled Tunis and Tripoli; and the example of the United States was followed by European governments until the corsairs were annihilated.

CORSE: see under Corps.

CORSE, *kawrs*, John Murray: military officer: 1835, Apr. 27—1893, April 27; b. Pittsburg, Penn. He graduated at West Point 1857, resigned from the army, and began the study of law in the Albany law-school. He settled in Iowa, and was nominated for lieut.gov. on the democratic ticket. Entering the U. S. service as maj. of the 6th Iowa vols., he served under Frémont, and went through the Corinth campaign and the sieges of Memphis, Vicksburg, and Jackson, being promoted col., and brig.gen. 1863, Aug. 11. He led the assault at Missionary Ridge 1 ,63, Sep., and greatly distinguished himself by his unflinchi g defense of Allatoona, with its large commissary supplies, which post he held till Sherman sent relief, though Corse was attacked by a Confederate force four times as large as his own. He was severely wounded during the defense. Corse was brevetted maj.gen. 1864, Oct. 5. After the war he was appointed collector of internal revenue for Chicago, and held the office two years. After four years in Europe, he settled in Winchester, Mass., 1882; and was appointed postmaster of Boston, 1886, but was removed by Pres. Harrison.

CORSELET, or Corslet, n.: see under Corps: also Cuirass.

CORSET, *kawr'set* [F. *corset*, diminutive of *cors*, body]: a close-fitting under-garment worn by women, said to have been introduced into France at the time of the revolution of 1789, but to have been invented by the Germans centuries before. It was generally worn in Europe during the middle ages; but with a skirt and sleeves. Bandages were employed among the Roman women for the same purpose as the corset, supporting the figure. It is made usually of strong cloth, with whalebone or steel inserted for strength and elasticity, being fastened in front by metal catches, or hooks and eyes, and laced at the back with cord run through eyelet-holes, and is covered with silk or satin, often beautifully embroidered or hand-painted. It has not been uncommon for men to wear corsets, and this was particularly the case in London, when George IV. was Prince of Wales.—In the 15th c. men-at-

arms among the English, French, and other European soldiery wore the corset (called Corselet) stuffed and quilted, as a protection against offensive weapons. See CUIRASS; CORPS.

CORSICA, *kawr'sĭ-ka*: island in the Mediterranean, separated from the island of Sardinia by the Strait of Bonifacio on the s.; lat. 41° 20′—43° n., and long. 8° 30′—9° 30′ e.; 3,350 sq. m.; forming the French dept. of Corse, with a population, in 1891, of 288,596. The greater portion of the island is occupied by ranges of rugged mountains, the highest being Monte Rotondo (ancient *Mons Aureus*), 9,068 ft. high, and covered with perpetual snow. There are several rivers in the island, the largest of which, having their source in Monte Rotondo, are the Tavignano (ancient *Rhotanus*) and the Golo (ancient *Tavola*). They flow into the sea on the e. coast; the Golo is navigable for boats. Several small rivers, most of which are dry in summer, flow w. into the sea. The soil is generally fertile in the valleys, yielding all kinds of cereals, and much wine is produced. Olive, orange, fig, almond, and other fruit-trees flourish; fruit forming a considerable item in the exports. But Corsica is noted chiefly for magnificent forests of oak, pine, chestnut, beech, larch, cork, etc. Many of the pines are upward of 120 ft. high, and are much used for masts in the French navy. The chestnut forests are particularly fine, and the fruit is an important article of food for the inhabitants. Prickly-pear, arbutus, myrtle, etc., abound. Iron, lead, black manganese, antimony, marble, and granite of beautiful quality, are found on the island, but these sources of wealth are not developed. Sheep of a peculiar black breed with four and occasionally six horns, goats, and pigs are numerous, and the rearing of cattle is carried on largely. Tunny, pilchard, and anchovy abound along the coast. Corsica is divided into the five arrondissements of Ajaccio, Bastia, Calvi, Corte, and Sartene. Ajaccio is the capital. The language spoken in Corsica is a corrupt Italian. The Corsicans are great *improvisatori;* valor, love of freedom, and desire of revenge are their principal characteristics.

In early times Corsica was known as *Cyrnos*, although its native name is said by some historians to have been the same as that which it now bears. As early as B. C. 564, a colony of Phocæans had founded a city on its e. coast. After successive changes of Carthaginian, Roman, Vandal, Greek, and Gothic rulers, it came in the 8th c. into the hands of the Saracens, who held it until the beginning of the 11th c., when it fell under the dominion of Pisa. It afterward passed to the Genoese, who held it till 1755, when the Corsicans under General Paoli made themselves in great part independent. The French, to whom the Genoese surrendered the claims that they themselves could not maintain, captured it 1768; since which time, with slight intermission, it has remained in the possession of France. Pop. (1901) 295,589. CORSICAN, a *kawr'sĭ-kan*, pertaining to Corsica.

CORSICANA, *kawr-sĭ-kâ'na:* city and co.-seat of Navarro co Texas; 20 m. w. of Trinity river, 100 m. n.e. of Austin; on the St. Louis Southwestern and the Houston and Texas Central railroads. It is in the cotton and wheat belt of the state, and has State Orphan Asylum, Odd Fellows' Orphan Home Convent, a number of churches, good schools fine court-house, hotels, 3 national banks with combined capital of $525,000, machine-shops, a flour-mill planing-mills, a cotton compress, two oil-mills, ice factories, street railway, and waterworks. It has daily and weekly newspapers. It was settled 1840. Pop. (1900) 9,313; (1910) 9,749.

CORSNED, n. *kŏrs'nĕd* [Dan. *korse*, to mark with the sign of the cross: AS. *cors*, a curse; *snæd*, a bit, a morsel; Icel. *snad*, food]: the morsel of the curse or execration; a piece of bread or cheese marked with a cross, used in early times as an ordeal to ascertain whether persons suspected of any crime were guilty or innocent. The Corsned, according to Blackstone, 'was consecrated with a form of exorcism, desiring of the Almighty that it might cause convulsions and paleness, and find no passage, if the man was really guilty, but might turn to health and nourishment if he was innocent.' In this mode of divination, barley-bread appears to have had the preference. It was one of the many forms of ordeal (q.v.).

CORT, *kort*, CORNELIS: 1536–78; b. Hoorn: Dutch engraver. In 1572, he went to Venice, and was hospitably received by Titian. Being less of a painter than of an engraver, he seems very soon to have been employed by the great Venetian colorist for the reproduction in copper-plate of some of his masterpieces; and it appears he did it so well, that he afterward engraved for Tintoretto and other Venetian masters. Cort next settled at Rome, where he formed an engraving school, and had among his pupils Agostino Caracci, and from this school sprang the most excellent Italian and Venetian engravers. Cort's works had a favorable influence on the graver's art in the Netherlands. He died at Rome. His engravings, considering his short life of 42 years, are very numerous, amounting to more than 150.

CORTEGE, n. *kŏr'tăzh* or *kŏr'tāj* [F. *cortège*—from It. *corteggio*]: a train of attendants; a procession.

CORTELYOU, *cŏrt'l-yū*, GEORGE BRUCE, Postmaster-General of the U. S.: b. New York City, 1862, July 26. He was educated mainly at the Hempstead (L. I.) Institute, and at the State Normal School, Westfield, Mass., where he was graduated in 1882. From 1883 to 1885 he was engaged as a general law reporter in New York City, after which he became principal of preparatory schools in the city. Subsequently he acted as private secretary to various officials, and in 1895 received the appointment of stenographer to the President; in 1896 he became executive clerk, and two years later assistant secretary. Finally, in 1900, he was made secretary to the President. In 1903,

the Department of Labor having been created, Cortelyou was appointed the first secretary, and thus became a member of the President's Cabinet. In 1904 he served as chairman of the Republican National Committee, and the following year became Postmaster-General, and Secretary of the Treasury in 1907.

CORTES, n. plu. *kŏr'tēz* [Sp.]: Spanish or Portuguese parliament, or assembly of the states, consisting of the nobility, the clergy, and representatives from cities. As one district of Spain after another was recovered by the Christian princes from the Moors, there arose in each a corporation composed of the different 'States' or orders of the population, limiting the power of the princes. From the union of several of these territories were formed the two leading kingdoms of Castile and Aragon, having each its Cortes, representing the clergy, the nobility, and the cities. In Aragon, the Cortes appointed a judge, *el justicia*, who decided disputes between the king and his subjects, and confined the royal power within constitutional limits. In Castile the rights of the burghers were less extensive than in Aragon, but in both states the king was dependent on the Cortes. After the union of Castile and Aragon under Ferdinand and Isabella, the crown succeeded in making itself less dependent on the Cortes, whose power and privileges were gradually encroached upon, until at last they were seldom assembled except to do homage or to sanction an arrangement as to the succession to the throne. After 1713 they did not meet till 1789 on the accession of Charles IV. In 1809, the Cortes, as composed in 1789, was assembled by the Junta, and framed a new constitution, called the Constitution of 1812, which, however, was set aside at the restoration. Endless attempts at restoration and modification of the Spanish Cortes have since been made, without any happy result. See SPAIN.

CORTES, *kawr'tėz*, Sp. *kor-tās'*, HERNAN: daring conqueror of Mexico: 1485–1547, Dec. 2; b. Medellin, a village of Estremadura, Spain. He was educated for the law, but adopted the profession of arms; and in 1511 distinguished himself under Diego Velasquez in the expedition against Cuba. In 1518, the conquest of Mexico was intrusted to him by Velasquez, who was then gov. of Cuba; but the latter had no sooner granted him the commission than he wished to revoke it, fearful that his dashing and sagacious lieutenant would deprive him of all the glory of the enterprise. Cortes, however, maintained his command in defiance of the governor. Never, perhaps, was an enterprise so great undertaken with so little regard for its difficulties and dangers. A force of between 600 and 700 men, only 13 of whom were musketeers, with only 10 field-pieces and two or three smaller pieces of cannon, were all the means at Cortes' disposal to effect the conquest of the then extensive empire of Mexico, when, early in 1519, he landed on its shores. Sailing up the river Tabasco, Cortes captured the town of that name, the prowess of the Spaniards occasioning great terror to the Tabascans, who made liberal

presents to the white men, and volunteered all the information about Mexico in their power. Arriving off the coast of San Juan de Ulloa, Cortes was visited by some Mexican chiefs, with whom he entered into negotiation regarding a visit to Montezuma, who then ruled with nearly absolute sway over Mexico. Montezuma sent Cortes rich presents, but objected to his visiting the capital. But Cortes had resolved upon seeing the emperor in his palace, and was not to be daunted by opposition. Having founded the town of Vera Cruz, and burnt his ships, so that his troops could not return, and must therefore conquer or perish, Cortes with a force reduced to 400 Spaniards on foot and 15 horse, but with a considerable number of Indian followers, lent him by dissatisfied chiefs dependent on Montezuma, marched upon the capital. Overcoming the Tlascalans, a brave people, on the way, who afterward became his firm allies, and taking fearful vengeance on the city of Cholula, where, by Montezuma's orders, a treacherous attempt was made to massacre his troops, Cortes, 1519, Nov. 8, reached the city of Mexico with his little band, and was received with great pomp by the emperor in person. The Spaniards were regarded as those descendants of the sun who, according to a current prophecy, were to come from the east and subvert the Aztec empire—a tradition that was worth many soldiers to Cortes. An attack on Cortes' colony at Vera Cruz by one of Montezuma's generals, however, proved the mortality of the Spaniards, and would have been the ruin of them but for the decisiveness of Cortes, who immediately seized the emperor, and carrying him to the Spanish quarter, forced him to surrender the offending general and three other chiefs, whom he caused to be burnt in front of the palace, and ere long compelled Montezuma formally to cede his empire to Spain. One has nothing but astonishment for this man, whose daring acts in the capital city of the empire, containing, it is calculated, 300,000 inhabitants, had as a supporting force nothing but 400 Spaniards, and a few thousand Indians, whom he had recently conquered. Meanwhile Velasquez, enraged at Cortes' success, sent an army of about 1,000 men, well provided with artillery, to compel his surrender. Cortes unexpectedly met and overpowered this force, and secured its allegiance. But in his absence the Mexicans had risen in the capital, and Cortes was finally driven out with much loss. During the disturbance, Montezuma, who was still a prisoner, appeared on a terrace with the view of pacifying his people; but he was wounded by a stone, an indignity against his kingly person which he took so much to heart that he died in a few days. Cortes now retired to Tlascala, to recruit his fatigued and wounded men; and receiving re-enforcements, he speedily subjugated all Anahuac to the e. of the Mexican valley, and soon marched again on the city of Mexico, which he succeeded in capturing 1521, Aug. 16, after a siege of four months ended by a murderous assault of two days. Famine had assisted the Spanish arms, so that of the vast popu-

lation only about 40,000 remained when the Spaniards entered the city, which lay in ruins, 'like some huge churchyard with the corpses disinterred and the tombstones scattered about.' Mexico was now completely subjugated, for though some attempts at revolt were afterward made, they were soon crushed by Cortes, who had been nominated gov. and capt. gen. of the country by Charles V. In 1528, Cortes returned to Spain, to meet some calumnies against him, and was received with great distinction. On his return to Mexico, 1530, however, he was divested of his civil rank. At his own expense he fitted out several expeditions, one of which discovered California. In 1540, he came again to Spain, but was coldly received at court.

CORTEX, n. *kŏr'tĕks* [L. *cortex* or *cortĭcem*, the bark of trees: It. *cortice*]: the bark of a tree; a cover; applied to the outer portion of an organ; also applied to that portion of the kidney which lies between the cones and the surface of the organ. COR'TICAL, a. *-tĭ-kăl*, belonging to the bark; consisting of bark. COR'TICATED, a. *-kā-tĕd*, resembling bark; having the bark. COR'TICIF'EROUS, a. *-sĭfĕ'r-ŭs* [L. *fero*, I produce]: producing bark or that which resembles it. CORTIC'IFER, n. *-tis'ĭ-fèr*, one of the *Corticata*, or backed corals. CORTIC'IFORM, a. *-tĭs'ĭ-fawrm* [L. *forma*, shape]: like bark. COR'TICOSE, a. *-tĭ-kōs*, or COR'TICOUS, *-tĭ-kŭs*, full of bark; barky. CORTICINE, n. *kŏr'tĭ-sĭn*, a floor-cloth, consisting of a mixture of ground cork, sawdust, and oil, spread over a canvas backing and passed between rollers. CORTICAL LAYER, in *zool.*, the layer of sarcode inclosing the chyme mass, and surrounded by the cuticle, in the Infusoria. CORTICOLOUS, a. *kŏr-tĭk'ŏ-lŭs* [L. *cŏlo*, I dwell, I abide]: growing on bark.

CORTLAND, *kōrt'land:* city and county-seat of Cortland co., N. Y.; on the Tioughnioga river, and the Lackawanna, and the Lehigh Valley railroads; 36 m. s. of Syracuse. Its chief industries are machine-shops, wire-works, foundries, and carriage, furniture, corundum and harness factories. There are a state normal school, conservatory of music, churches, banks, public and high schools, and daily and weekly newspapers. The city government consists of a mayor, elected biennially, and a municipal council of six members. Cortland was first settled in 1792, was a part of Homer till 1829, became a borough 1853 and a city 1900, March 16. Pop. (1900) 9,014; (1910) 11,504.

CORTONA, *kŏr-tō'nâ:* town of central Italy, about 50 m. s.e. of Florence; beautifully situated amid vineyards on a hill rising from the fertile valley of the Chiana, and commanding a view of the lake of Perugia (anc. *lacus Trasimenus*). The city is of fabulous antiquity, older, it is said, than Troy; and the Cyclopean walls, erected by the Pelasgians—which in many parts remain unchanged—prove, if not a history quite as old as tradition affirms, at all events one second in remoteness to few places in Italy. It was one of the most powerful of the 12 cities forming the

Etruscan League. By the Romans, who settled a colony here about the time of Sulla, it was called *Corythus*. After many vicissitudes during the middle ages, the town became subject to Florence in the 15th c. Besides the walls, there are several objects of Etruscan antiquity at Cartona. Among the principal buildings are the cathedral, dating from the 10th or 11th c., with some fine paintings and monuments, and the churches of Jesus, St. Francesco. The Etruscan Acad. has its seat here, the museum connected with which contains a multitude of Etruscan sarcophagi, vases, etc. Cortona has a trade in wine and olives; marble is found in the vicinity. Pop. commune abt. 29,500.

CORTONA, *kor-t'nâ*, PIETRO BERRETTINIDA: 1596, Nov. 1—1669, May 16; b. Cortona Italy: painter and architect. He studied painting at Rome, was employed by Pope Urban VIII. to decorate a chapel in the church of St. Bibiena and paint the frescoes in the Barberina palace; subsequently executed some remarkable frescoes in the Pitti palace, Florence; and then, settling in Rome, painted with success, restored the church of Santa Maria della Pace, and was architect of several noted buildings.

CORUÑA, *kō-rôn'yâ*, (English, CORUNNA, *ko-rŭn'na*): province of Spain, in the n.w. part of Galicia; bounded n. and w. by the Atlantic Ocean, e. by the province of Lugo, and s. by that of Pontevedro; 3,078 sq. m. It has an irregular coast line; numerous mountains; fertile valleys; valuable forests; mines of iron, copper, coal, and silver; ship-yards; manufactories of earthenware, hardware, hats, shoes, leather, and rope; and is watered by the Ulla, Tambre, Lezaro, Mandeo, and Mero rivers. The chief cities are Coruña, the capital, Santiago de Compostela, and Ferrol. Pop. (1900) 653,556.

CORUÑA (English, CORUNNA): fortified seaport of Spain on a small headland in the Atlantic, formed by the three bays of Betanzos, Coruña, and El Ferrol, about midway between Capes Finisterre and Ortegal; lat. 43° 22′ n., long. 8° 22′ w. Coruña, which is a thriving place, is built partly on the slope and partly at the foot of a hill, and is divided into the upper and lower towns the former being the most ancient. The lower town, formerly inhabited chiefly by fishermen, is now more important than the upper. It is well built, chiefly of granite, and some of its streets are broad and well paved. There are few public buildings of any note. A citadel defends the town, and the harbor, protected by forts, is safe and commodious. The commerce of Coruña is considerable, not merely with the Spanish ports, but with England and America. There are manufactures of cigars, soap, starch, and cotton; and sardine fisheries. Coruña dates its origin from the Phœnicians, from whom it was taken by the Romans B.C. 1st c. For Englishmen, great historical interest attaches to Coruña. Here, in 1386, John of Gaunt landed to claim the crown of Castile in right of his wife, daughter of Pedro the

Cruel; in 1554, Philip II. embarked here for England to marry Queen Mary; and in 1588 the great Spanish Armada, which had been refitted at this port, set sail for the conquest of England. But Coruña is best known in connection with the death of Sir John Moore, who, as a fitting conclusion to his memorable retreat, with about 14,000 men, defeated (1809, Jan. 16) on the heights of Elvina, behind Coruña, 20,000 French under Soult. Moore, who was mortally wounded in the action, was buried on the ramparts in his cloak. A monument, erected by the British govt., marks the place of his burial. Pop. (1900) 43,971.

CORUNDUM, n. *kō-rŭn'dŭm* [Indian name, *korund*]: a native oxide of aluminum, Al_2O_3, crystallizing in the rhombohedral system, and also occurring massive. It is adamantine or vitreous in luster, and very variable in color. Three varieties are commonly recognized. Of these the first is known as sapphire, and includes those specimens that are used as gems. The typical sapphire (q.v.) is blue, the red kind being known as 'oriental ruby,' the yellow as 'oriental topaz,' the green as 'oriental emerald,' and the purple or violet as 'oriental amethyst.' The colors of these gems are due to the presence of traces of certain metallic oxides. The second principal variety of the mineral is that which is known in the arts simply as 'corundum,' and is used as an abrasive. It includes the less transparent varieties of blue, brown, black, gray or white colors. It is either crystallized or granular, or in masses showing distinct parting. The third variety, 'emery,' (q.v.) is not pure, but is an intimate mixture of corundum with magnetite or hematite. It has long been one of the most important abrasives, but it is now being superseded by the greatly superior pure corundum. The Canadian corundum deposits, discovered a few years ago, are the largest and most important known.

CORUSCATE, v. *kŏ-rŭs'kāt* [L. *coruscatus*, vibrated, glittered: It. *coruscare*]: to throw off vivid flashes of light; to flash or sparkle. CORUS'CATING, imp. CORUS'CATED, pp. CORUSCATION, n. *kŏr'ŭs-kā'shŭn* [F.—L.]: a sudden burst of light in the clouds or atmosphere; a flash; glitter. CORUSCANT, a. *kŏ-rŭs'kant*, gleaming; glittering in flashes; flashing.—SYN. of 'coruscate': to gleam; sparkle; glisten; glitter; lighten; radiate; flash; blaze.

CORVE, n. *kawrv*, or CORF, n. *kawrf* [Dut. *korf;* Icel. *kœrf*, a basket]: a wicker-basket for bringing coals from the working coal face to the pit-mouth, used on account of its lightness. *Note.*—In the Orkney Islands we have 'cubbie' and 'casie,' round open baskets of straw-work for carrying loads on the back. CRUIVE, 'a small circular inclosure,' may also be connected; as also CORVETTE, in the general sense of an open vessel.

CORVEE, n. *kawr-vē'* [F.—from L.L. *corvada*—from L. *corrogo*, to ask together—from *cor*, *cum*, with; *rogo*, I ask]: an obligation to perform certain services for the feudal lord, such as the maintenance of roads, etc.

CORVEI, *kawr'vi* (*Corbeia nova*): Benedictine abbey on the Weser, near Höxter, oldest and most famous in early Saxony, founded in the beginning of the 9th c. It was a colony from the monastery of the same name in Picardy, then part of the country of the West Franks. It received rich endowments; was the centre of great agricultural improvement and prosperity during the earlier middle ages; and the seat of a school, founded by Ansgar, Apostle of the North, which flourished greatly in the 9th and 10th c., and was next in reputation to Fulda. Its abbots were numbered among the spiritual princes of the German empire. In 1794 it was made a bishopric by Pius VI. Its territory then extended to about 22 sq. m., with 10,000 inhabitants. In 1803 it was annexed to Nassau, from which it was transferred 1807 to Westphalia, and 1815 to Prussia. In 1822 the lands belonging to the ancient abbey passed into the hands of Count Victor Amadeus von Hessen-Rheinfels-Rothenburg, which were formed into a mediate principality of the Germanic empire. The church of the abbey is in the Gothic style, very magnificently adorned in the interior, and contains a multitude of monuments of successive dynasties. The library and archives of the cloister, which contained most valuable records of the early ages of German history, all have been destroyed—the authenticity of the *Chronicon Corbejense*, an alleged record of this abbey from its foundation to the end of the 12th c., being doubtful.

CORVETTE, n. *kor-vĕt'*, or CORVET, n. *kawr'vĕt* [F. *corvette*—from Sp. *corveta* a leap, a curvet: comp. Gael. *carbh*, a ship (see CORVE)]: originally a little ship; a sloop of war; a war-ship, flush decked, ship rigged, but without quarter deck, carrying not more than 20 guns, all in one tier.

CORVIDÆ, *kawr'vĭ-dē*: family of birds of the ord. *Insessores*, tribe *Conirostres*, having a strong bill, compressed toward the point, and covered at the base with stiff, bristly feathers, which advance so far as to conceal the nostrils. The plumage is dense, soft, and lustrous, generally dark, but sometimes of gay colors, particularly in the tropical species. The birds of this family are widely diffused over the world. They are generally birds of strong and rapid flight; some are solitary, some gregarious in their habits; some reside in woods, some in moors and wastes, some on seacoasts, etc. They are omnivorous. They are remarkable for intelligence, prying curiosity, and a disposition to pilfer and secrete glittering articles. Besides the crows, raven, rook, and jackdaw, which belong to the genus *Corvus*, the magpie, jay, chough, and nut-cracker are included among the C. of Britain.

CORVINE, a. *kŏr'vīn* [L. *corvus*, a crow]: pertaining to the crow or crow kind.

CORVI'NUS, MATTHIAS: see MATTHIAS CORVINUS.

CORVO, *kawr'vō:* most northerly of the Azores, smallest inhabited island of the group. It measures only 6 m. by 3, the lat. of its s. point being 39° 42′ n. It is of volcanic

origin, and has, in an exhausted crater, a small lake 1,277 ft. above the sea. With a fertile soil and a delicious climate, Corvo has a pop., generally poor, of barely 1,000.

COR'WEN: town in N. Wales, in the n.e. of Merionethshire, on the right bank of the Dee, 10 m. w. of Llangollen. It is sheltered by a rock at the foot of the Berwyn mountains. Here the Welsh under Owen Gwynedd defeated Henry II., and afterward under Owen Glyndwr defeated Henry IV. Pop. of parish abt. 3,000.

CORWIN, *kawr'wĭn*, THOMAS: 1794, July 29—1865, Dec. 18; b. Bourbon co., Ky.; statesman. He was brought up on a farm; entered the clerk's office of Warren co., 1814; studied law and was admitted to the bar 1818, May; was elected to the legislature 1822; supported Henry Clay for pres. 1824, and John Quincy Adams 1828; was elected to congress 1830, gov. of Ohio as a whig 1840, and U. S. senator 1845; was sec. of the U. S. treas. dept. 1850, July—1853, Mar. 4; resumed practice of law at Lebanon, Ohio; was member of congress 1858–1861, and was then appointed U. S. minister to Mexico, where he remained until the arrival of Maximilian, 1864, June. Subsequently he practiced law in Washington, where he died. He was a brilliant orator at great political meetings.

CORY, CHARLES BARNEY, American naturalist: b. Boston, Mass., 1857, 31 Jan. He is a director in many important corporations, but best and most widely known as an expert vertebrate zoologist. He is an honorary curator of the Field Columbian Museum, Chicago, and a Fellow of the Linnæan and Zoological societies of London, England. His published works include: *A Naturalist in the Magdalen Islands* (1878); *Birds of the Bahama Islands* (1880); *Southern Rambles; Florida* (1881); *The Beautiful and Curious Birds of the World* (1883); *Birds of Haiti and San Domingo* (1884–6); *Birds of Eastern North America; How to Know the Ducks, Geese, and Swans of North America; How to Know the Shore Birds of North America; The Birds of the West Indies; Key to the Water Birds of Florida; Key to the Birds of Eastern North America; Hunting and Fishing in Florida; Montezuma's Castle and Other Weird Tales* (1899); *Dr. Wandermann.*

CORYBANT, n. *kŏr'ĭ-bănt* [Gr. *korubas*, a corybant; *koruban'tēs*, corybants—from *korus*, a helmet]: in *anc. myth.*, a priest of Cybele in Phrygia, whose rites partly consisted in wild armed dances and noisy music: in their insane excitement they were supposed to be possessed by spirits. COR'YBAN'TIC, a. *-băn'tĭk*, wildly excited, like the corybants engaged in their rites.

CORYD'ALIS: see FUMARIACEÆ.

CORYGAUM, *ko-rĭgawm':* insignificant village 16 m. n.e. of Poona, in the presidency of Bombay; historically interesting in connection with the final subjugation of the Peishwa of the Mahrattas. In 1818, Jan. 1, it was defended for nine hours by a mere handful of men under Capt. Staunton against a native force numbering at least

3,000 infantry and about 20,000 cavalry, the struggle terminating in the repulse of the assailants after terrible slaughter.

CORYLA'CEÆ: see CUPULIFERÆ.

CORYLOPHUS, n. *kŏr-ĭl'of-ŭs* [Gr. *korus*, a helmet; *lophos*, the back of the neck; a crest]: genus of beetles, the typical one of the family *Corylophidæ*.

COR'YLUS: see HAZEL.

CORYMB, n. *kŏrĭm* [Gr. *korum'bos*, the top, a cluster L. *corym'bus*, a cluster]: in *bot.*, very common form of *indefinite* and *centripetal* inflorescence, in which the flowers are arranged as in a raceme (q.v.), but the lower flower-stalks are elongated so as to bring the flowers almost to the level of those of the upper, as in the elder. CORYMBIATED, n. *kŏr'-ĭm'bĭ ā-tĕd*, garnished with berries or blossoms in clusters. CORYMBIFERÆ: see COMPOSITÆ. COR'YMBIF'-EROUS, a. *-bĭf'ĕr-ŭs* [L. *fero*, I carry]: bearing a cluster of flowers in the form of a corymb. COR'YMBOSE, a. *-bōs*, approaching the form of a corymb either in the branches or the inflorescence.

CORYMBUS, *ko-rĭm'bŭs*: particular mode of dressing the hair among the Greeks, with which the statues of Venus have rendered us familiar. The hair was often covered with a sort of open ornamental work.

CORYNOCARPUS, n. *kŏr-ĭn'o-kar'pus* [Gr. *korunĕ*, a club; *karpos*, fruit]: genus of trees, ord. *Myrsinaceæ;* natives of New Zealand, where the fruits of *Corynocarpus vulgaris* are used for food in times of scarcity, but the seeds, unless steamed and otherwise treated, are poisonous.

COR'YPHA: see FAN PALM: GEBANG PALM: TALIPAT PALM.

CORYPHENE, *kŏr'ĭfēn* (*Coryphœna*): genus of fishes of the family *Scomberidæ*, to which the name DOLPHIN, properly belonging to a genus of *Cetacea*, has by some mistake been popularly transferred. The coryphenes are remarkable for the beauty and metallic brilliancy of their colors, which delight the spectator as they are seen gliding with extreme rapidity near the surface of the water, gleaming in the light of the sun; and the changes of which, as they lie dying on the shore or on the deck of a vessel, have acquired poetic celebrity. They have an elongated compressed body, covered with small scales, the head rising in a sharp crest, the mouth large. They are natives of the seas of warm climates, and some species are found in the Mediterranean, among which is *C. hippuris*, the largest known, attaining a length of five ft. This and some of the other species are often seen playing around ships; and great interest is occasionally awakened by their pursuit of shoals of flying-fish. In this chase, a Coryphene may be seen to dart completely out of the water, making a leap of ten yards or more. The Coryphene is often caught by sailors, with a glittering bit of metal instead of a bait.

CORYPHEUS, n. *kŏr′ĭ-fē′ŭs* [L. *coryphæŭs*—from Gr. *koruphaï′ŏs*, standing at the head: F. *coryphée*]: leader of the chorus in ancient Greece. The name now denotes one of the highest distinction in any art or science. In the Italian opera the choir-leader is called the *corifèo;* in French *coryphée.*

CORYPHODON, *kō-rĭf′ō-dŏn*: a fossil animal of the extinct order *Amblypoda*, found in the lower Eocene sediments. It was an ungulate; the feet were short and post-like, something like those of the elephant; its head resembled that of a hippopotamus, and the skeleton had many peculiar characteristics. It was intermediate in size between the tapir and rhinoceros, being the largest land animal of its time. The New York American Museum of Natural History possesses a mounted skeleton.

CORYTHAIX, n. *kŏr-ĭ-thā′ĭks* [Gr. *koruthaix*, a helmet shaking with waving plume—from *korus*, a helmet; *aissō*, I move quickly]: genus of birds, family *Musophagidæ.* It contains the Touracos (q.v.). They are African birds with a green body, and the quill feathers of the wings and tail violet or red: see PLANTAIN-EATER.

CORYZA, n. *kŏ-rīză* [Gr. *korūza*, mucus of the nose]: an inflammatory affection of the mucous membrane lining the nose, resulting in an increased defluxion of mucus. See CATARRH.

COS, *kŏs* (more anciently, Meropis): island of the Grecian archipelago belonging to Asiatic Turkey. Its modern name is Stanko or Stanchio. Cos has a length of 23 m., with a breadth of 5. Half of the inhabitants are Greeks; the other half Turks and Jews, who congregate in the towns. On the e. side of the island a range of hills extends along the coast, from Cape Fonka on the n. to Point Korkilo on the s.; but with this exception, Cos consists mostly of delightful and fertile plains, which are well cultivated. South of these plains, on which stands the principal town, of the same name as the island, rises a high mountain range, which, from its jagged summit, is called Mount Prion—the 'sawing' mount or sierra. There are many mineral springs on the island. The exports are principally raisins, lemons, salt, and grain. The chief imports are oil, soap, butter, butcher-meat, and English manufactures. The climate in general is healthful. Many ancient Greek remains are scattered over the island. The chief town, Comopolis or Cos, is situated on the n. e. coast on the ruins of the ancient city of the same name; and in the centre of the chief street is a gigantic palm-tree, said to have stood there before the Christian era. To the n. w. is an old fortress of the knights of St. John. The harbor is small, with only about 6 ft. of water. The inhabitants are employed chiefly in agriculture. Modern Greek is the language spoken. In early times, Cos was sacred to the worship of Æsculapius. It was the birthplace of Ptolemy Philadelphus, of the painter Apelles, and the physician Hippocrates. In ancient times a fine partially transpar-

ent silk was manufactured at Cos, which was highly valued. Pop. 20,000–30,000.

COSCINOMANCY, *kos-sĭn'o-măn-sĭ:* species of divination practiced from the earliest times by means of a sieve [Gr. *koskinon*] and a pair of shears or forceps. It appears to have been employed chiefly for the discovery of thieves. The sieve was supported or suspended by means of the shears, in some way not easily understood; a certain mystical form of words was then used, and the names of the suspected persons being mentioned in succession, at the name of the thief the sieve moved or turned round.

COSECANT, n. *kō-sē'kănt* [L. *co*, for *complement*, and *secan'tem*, cutting]: Co'SINE, n. *-sīn* [L. *con*, *sinus*, a curve]: COTAN'GENT, n. *-tăn'jĕnt* [L. *tangen'tem*, touching]: terms in *trig.* denoting functions of angles expressed by the ratios of the sides of right-angled triangles in which these angles occur. *Note.*—These terms are *literally* the *complement-secant*, etc., that is, the secant, sine, etc., of the complement of a given angle—i. e., of the difference between it and a right angle: see SECANT, etc.: also TRIGONOMETRY.

COSEGUINA, *kō-sē-ginē'nâ:* a volcano of Nicaragua on a peninsula south of the Gulf of Fonseca; 4,000 ft. high. It is noted for the eruption in 1835, January, which lasted three days. The country within 100 miles was darkened by the ashes, which were carried as far as Jamaica. The volcano is at present quiescent.

COSENZA, *kō-sĕn'zâ* (formerly CALABRIA CITRA): province in Calabria, s. Italy, comprising 3,000 sq. m. between the Mediterranean and the Gulf of Tarento. Pop. 465,267.

COSENZA: town of Italy, cap. of the province of Cosenza, about lat. 39° 20′ n., long. 16° 15′ e. It is 12 m. e. of the Mediterranean, in a mountain-inclosed valley at the confluence of the Crati and the Busento, the waters dividing the town into two parts. The lower town is much affected by malaria arising from the river marshes, but the upper town is in a good degree healthful. It is the residence of the principal families, and contains some handsome buildings, including a cathedral, and an unusually fine courthouse. The streets generally are narrow and crooked. Cosenza has considerable industry, principal manufactures being silk, earthen-ware, and cutlery. Anciently, Cosenza, called *Consentia*, was a city of the Brutii. It was captured by the Carthaginian general, Himilco, and was forced to surrender (B.C. 204) to the Romans, who afterward colonized it. Alaric the Goth died here, A.D. 410, and is buried in the bed of the Busento. Pop. (1901) 21,545.

COSHER, v. *kō'shĕr*, [Ir.]: to exact free entertainment. COSHERER, n., one who under Brehon law exacted entertainment from tenants.

COSHOCTON, *cō-shŏc'tŏn*, Ohio, city and county-seat of Coshocton co., on the Muskingum river, the Ohio canal, and the Pennsylvania, the Toledo, W. V. & O.,

and the Wheeling & L. E. railroads, 69 m. n.e. of Columbus. The town was first settled in 1801, by Charles Williams and Isaac Hoagland, became a borough in 1848, and a city in 1902. Its municipal affairs are administered by a mayor and a council of seven members, elected biennially. The city is lighted by gas and electricity, and owns and operates its waterworks plant. There are fine coal banks in the vicinity, affording employment to about 300 persons; and in the city there are four large advertising sign factories, employing about 1,000 hands, machine-shops, iron and steel works, and a paper mill. There are three banks, with a combined capital of $225,000. Four public schools and an excellent public library constitute the educational facilities; and there are 10 church edifices. Pop. 6,473.

COSIER, n. *kō′zhėr*, [F. *coudre*, to stitch]: a cobbler, a patcher.

COSMETIC, n. *kŏz-mĕt′ĭk* [F. *cosmétique*—from Gr. *kosmētĭkos*, skilled in adorning—from *kosmos*, order, ornament]: any preparation that renders the skin soft, pure and white; a preparation which helps to beautify the complexion or the hair: Adj. that promotes beauty. Cosmet′ically, ad. *-kăl′lĭ*. Several cosmetics in use are comparatively harmless, such as perfumed starch and chalk; while others, such as *pearl white* (the subnitrate of bismuth), are more or less poisonous. The use of even the best is not to be commended, as the minute particles tend to fill up and clog the pores of the skin, and prevent the free passage of gases and vapors, which is essential to the preservation of any animal organ in thorough health.

COSMIC, a. *kŏz′mĭk.* or Cos′mical, a. *-mĭ-kăl* [F. *cosmique*, cosmical—from Gr. *kosmos*, order, the world]: relating to the universe. Cosmism, n., a theory of the universe.

COSMO DE' MEDICI. See Medici.

COSMOGONY, n. *kŏz-mŏg′ŏ-nĭ*, [Gr. *kosmos*, 'world,' +*γονή* 'origin']: according to its etymology, should be defined the origin of the world itself; but the term has become, to a great degree, associated with the numerous theories of different nations and individuals respecting this event. Though the origin of the world must necessarily remain forever concealed from human eyes, there is, notwithstanding, a strong desire in the breasts of mortals to unveil it; so that we find hypotheses among all nations respecting the beginning of all things. We may divide these hypotheses into three classes: (1) The first represents the world as eternal, in form as well as substance. (2) The matter of the world is eternal, but not its form. (3) The world had a beginning, and shall have an end.

1. Ocellus Lucanus is one of the most ancient philosophers who supposed the world to have existed from eternity. Aristotle appears to have embraced the same doctrine. His theory is, that not only the heaven and

earth, but also animate and inanimate beings, in general, are without beginning. His opinion rested on the belief that the universe was necessarily the eternal effect of a cause equally eternal, such as the Divine Spirit, which, being at once power and action, could not remain idle. Yet he admitted that a spiritual substance was the cause of the universe; of its motion and its form. He says positively, in his *Metaphysics*, that God is an intelligent Spirit (*νοῦς*), incorporeal, eternal, immovable, indivisible, and the Mover of all things. According to this great philosopher the universe is less a creation than an emanation of the Deity. Plato says the universe is an eternal image of the immutable idea, or type, united from eternity with changeable matter. The followers of this philosopher both developed and distorted this idea. Ammonius, a disciple of Proclus, taught in the 6th century, at Alexandria, the coeternity of God and the universe. Modern philosophers, and also ancient ones (for example, Xenophanes, according to Diogenes Laertius), went further, and taught that the universe is one with the Deity. Parmenides, Melissus, Zeno of Elea, and the Megaric sect, followed this doctrine.

2. The theory which considers the matter of the universe eternal, but not its form, was the prevailing one among the ancients, who, starting from the principle that nothing could be made out of nothing, could not admit the creation of matter, yet did not believe that the world had been always in its present state. The prior state of the world, subject to a constant succession of uncertain movements which chance afterward made regular, they called *chaos* 'empty space'. The Phœnicians, Babylonians and Egyptians seem to have adhered to this theory. The ancient poets, who have handed down to us the old mythological traditions, represent the universe as springing from chaos without the assistance of the Deity. Hesiod feigns that Chaos was the parent of Erebus and Night, from whose union sprang the Air (*αἰθήρ*, 'the upper air,' as distinguished from *ἀήρ*, 'the lower air'), and the Day (*ημέρα*). He further relates how the sky and the stars were separated from the earth, etc. The system of atoms is much more famous. Leucippus and Democritus of Abdera were its inventors. The atoms, or indivisible particles, say they, existed from eternity, moving at hazard, and producing, by their constant meeting, a variety of substances. After having given rise to an immense variety of combinations, they produced the present organization of bodies. This system of cosmogony was that of Epicurus, as described by Lucretius. Democritus attributed to atoms form and size, Epicurus added weight. Many other systems have existed which must be classed under this division. That of the Stoics admitted two principles, God and matter, in the abstract, both corporeal, for they did not admit spiritual beings. The first was active, the second passive.

3. The third theory of cosmogony makes God the creator of the world out of nothing. This is the doctrine of the Mosaic cosmogony as contained in the first chapter of the book of Genesis, which gives a somewhat detailed account, including the creation of the heaven and the earth, and various subsequent creative acts, culminating in that of man. The immediate creation of heaven and earth by God is also emphatically asserted in some of the psalms. This has been the cosmogony most commonly accepted by Christians, though many at the present day do not consider that they are bound to accept it as literally true. Some consider it to have been derived by the Jews from some non-Jewish people, and a creation story in some respects similar has been discovered among the old Babylonian cuneiform inscriptions. Similar views were also held by the Etruscans and Persians.

Older speculators on the origin of the world had a simpler problem before them than have the modern, now that science has so greatly advanced; difficult questions regarding the origin of life and the evolution of plants and animals have made themselves felt; and the revelations of astronomy have so greatly enlarged our conceptions of the universe. Of the origin of our own globe several hypotheses have been put forward, perhaps the most common being the nebular hypothesis.

COSMOGRAPHY, n. *kŏz-mŏg′ră-fĭ* [Gr. *kosmos*, the world; *grapho*, I describe, I write of: F. *cosmographie*]: a description of the world or universe; the science which treats the several parts of the universe, their laws and relations, and therefore comprehends geography, geology, and astronomy. COSMOG′RAPHER, n. *-ră-fẽr*, one who describes the world or universe. COS′MOGRAPH′ICAL, a. *-mŏ-grăfĭ-kăl*. COS′MOGRAPH′ICALLY, ad. *-lĭ*.

COSMOLABE, n. *kŏz′mo-lāb* [Gr. *kosmos*, the world; *lambano*, I take]: instruments for taking the angles between the heavenly bodies and their height. It was nearly the same as the astrolabe.

COSMOLATRY, *kŏz-mŏl′a-trĭ* [Gr. *kosmos*, the world; *latreia*, divine worship]: the worship of the world. In some cases it might rest on a foundation of pantheistic belief.

COSMOLOGY, n. *kŏs-mŏl′-ō-gy* [Gr. *cosmos*, world, and *logos*, principle]: that branch of philosophical inquiry which deals with the structure of the universe. In a broad sense every philosophy involves a cosmology. Nevertheless, certain philosophers have been more interested in attempting to solve such problems as have to do with the ethical aspects of life, others with the æsthetic features of experience, whereas, still others have devoted their principal interest to this cosmological aspect of reality. The early Greek philosophers, for example, Thales and Anaximenes, were particularly interested to determine the fundamental nature of reality which the latter declared to be air and the former water.

Plato, on the other hand, presents a conception of the world in which ideas are the basal realities. Speaking generally, materialism and idealism represent the two extremes in cosmology regarding the ultimate character of reality. Modern speculation has largely concerned itself with the problem of the *development* of natural phenomena, as is illustrated in the philosophy of evolution.

COSMOMETRY, n. *kŏz-mŏm′ēt-rĭ* [Gr. *kosmos*, the world; *metron*, a measure]: the science which measures the world.

COSMOPLASTIC, a. *kŏz′mŏ-plăs′tĭk* [Gr. *kosmos*, the world; *plastĭkos*, plastic]: world-forming; pertaining to the formation of the world.

COSMOPOLITAN, n. *kŏz′mō-pŏl′ĭ-tăn*, or COSMOP′OLITE, n. *-mŏp′ŏ-līt* [Gr. *kosmos*, the world; *polītēs*, a citizen: F. *cosmopolite*]: one who is at home everywhere; a citizen of the world. COS′MOPOL′ITANISM, n. *-mŏ-pŏl′ĭ-tăn-ĭzm*, citizenship of the world.

COSMORAMA, n. *kŏz′mō-rā′mă* [Gr. *kosmos*, the world; *(h)orāma*, a view]: an optical exhibition in which objects are represented vividly, and greatly enlarged in size; a diorama. COS′MORAM′IC, a. *-răm′ĭk*, pertaining to.

COSMOS, n. *kŏs′mŏs* [Gr. *kosmos*, order, harmony, the world]: the universe—the globe, all worlds, and all things therein: see COSMOGONY. COSMIC, a. which see. MICROCOSM, n. man as an epitome of the universe in the different parts and qualities of his nature: see MICROCOSM.

COSMOSPHERE, n. *kŏz′mo-sfēr:* an instrument for representing, though of necessity very imperfectly, the relative position of the earth with regard to the stellar 'firmament.'

COSMOTHETIC, a. *kŏz-mo-thēt′ĭk* [Gr. *kosmos*, the world; *thetēs*, one who places]: believing in the existence of matter, but at the same time denying that the external world has any existence except in our own mental conception. COSMOTHETIC IDEALISM. See *Idealism.*

COSSACKS, n. plu. *kŏs′săks* [Russ. *kozake*, said to be a Tartar word meaning 'vagabond': Tartar, *kasak*, a cavalier]: in *Russia*, military tribes guarding the s. and e. frontiers of the Russian empire—very skilful as horsemen: a race whose origin is scarcely less disputed than that of their name. The latter has been variously derived from words meaning, in radically distinct languages, 'an armed man, a sabre, a rover, a goat, a promontory, a coat, a cassock, and a district in Circassia.' The Cossacks are by some held to be Tartars, by more to be of nearly pure Russian stock. The most probable view is that they are of very mixed origin. Slavonic settlers seem to have mingled with Tartar and Circassian tribes in the regions s. of Poland and Muscovy, in the Ukraine and on the lower Don; and to have given to the new race, first heard of as Cossacks in the 10th c., a predominantly Russian character.

COSSACKS.

On the conquest of Red Russia by Poland, numerous Russian refugees fled to the Cossack country; and more on the Tartar conquest of Muscovy. The numbers of the Cossacks were also recruited from time to time by adventurers or fugitives from Poland, Hungary, Walachia, and elsewhere; but in physique, as in language and religion, the Cossacks have always been mainly Russian. They distinguished themselves in war against Turks and Tartars, and were known as a powerful military confederacy in the 15th c. The kings of Poland and the czars of Muscovy employed them largely to defend their frontiers, especially against nomadic neighbors; but the connection between the Cossacks and their lords paramount was always very elastic, and was frequently repudiated to suit the convenience of either party. The Cossacks are still the outposts of Russian authority towards Siberia, Central Asia, and the Caucasus. Living near, or as 'free Cossacks' among, hostile peoples, the Cossacks developed their peculiar military organization—either forming a cordon of military settlements along the confines of occupied territory, or as isolated camps in the nomad country beyond. Agriculture they eschewed; self-reliance and readiness at all times for defense or assault were their chief characteristics; though such of them as inhabited the banks of the Don and Dnieper, and their islands, became and still are skilful boatmen and fishers. Their political constitution was completely democratical; all offices were elective for one year only; and every Cossack might be chosen to any post, including the supreme one of Attaman and Hetman. This organization they have in great measure retained, though the office of Hetman was abolished by the Emperor Nicholas, except as a title hereditary in the imperial family. There have been two main branches of the Cossacks—the Malo-Russian and the Don Cossack. To the first belonged the Zaporogian Cossacks, those dwelling near the *Porogi* or falls of the Dnieper. From them again are descended the Tschernomerian Cossacks, those of the Kuban Valley and of Azov. From the Don Cossacks spring those of the Volga or of Astrakhan, of the Terek Valley, of Orenburg, of the Ural, and of Siberia. They furnish a large and valuable contingent of light cavalry to the Russian army, and are very patient of fatigue, hunger, thirst, and cold. The Don Cossacks give name to a province with an area of nearly 60,000 sq. m.; population over a million, of whom 20,000 are Kalmucks. Though the Cossacks have generally been represented in the west of Europe as little better than fierce savages, they have left a very favorable impression on those who have dwelt among them. Jonas Hanway found them in 1743 'a civilised, and a very gallant as well as sober people;' and many more recent travelers agree in asserting that the Cossacks are in intelligence, cleanliness, refinement, and enterprise greatly the superiors of the average Russians. See Springer, *Die Kosacken* (1877); Wallace Mackenzie's *Russia* (1877).

COSSET, n. *kŏs'sĕt* [It. *casiccio*, a lamb bred by hand—from *casa*, a cottage]: a lamb brought up by hand; a pet lamb: V. to fondle. COS'SETING, imp. COS'SETTED, pp. *-sĕ-tĕd.*

COSSIMBAZAR, *kŏs-sĭm-ba-zâr'* (*Cossim's market*): town on the Bhagirathi, which is the first or most westerly offset of the Ganges. It is the river port of Moorshedabad. It was formerly famous for its silk manufactures. Pop. about 4,000.

COS'SUS: see GOAT MOTH.

COST, n. *kŏst* [OF. *coster*, and *couster*, to stand one in, to cost—from L. *constārĕ*, to stand together, to consist, to cost: It. *costare*, to cost: comp. Gael. *cosd* or *cosg*, to spend]: the price or value of a thing; expense; charge; expense of any kind; pain; suffering: V. to be had at a price; to be bought for; to require to be given, laid out, bestowed, or employed; to cause to bear or suffer. COST'ING, imp. COST, pt. and pp. COSTS, n. plu. law charges. COST'LY, a. *-lĭ*, of a high price; expensive; sumptuous. COST'LINESS, n. expensiveness. COST'LESS, a. without cost. COST-FREE, a. free of cost or charge.—SYN. of 'cost, n.': value; worth; loss; detriment.

COSTA, n. *kŏs'tă* [OF. *costé*, a side—from L. *costa*, a rib, a side]: a rib; the mid-rib. COSTÆ, n. plu. *kŏs'tē*, in *bot.*, the prominent bundles of vessels in the leaves; in *zool.*, the rows of plates which succeed the inferior or basal portion of the cup among Crinoidea; vertical ridges on the outer surface of thecæ among corals. COSTAL, a. *kŏs'tăl* [It. *costale;* F. *costal*, costal]: pertaining to the sides or ribs of the body. COSTATE, a. *kŏs'tāt*, or COS'TATED, a. ribbed; in *bot.*, applied to leaves which have a single rib.

COSTA-CABRAL, ANTONIO BERNARDO DA, Count of Thomar, Portuguese statesman: b. Fornas d'Algostra, province of Beira, 1803, May 9; d. San Juan de Flor 1889, Sep. 1. He received his education at the University of Coimbra, became prime minister 1838, March 7, but relinquished this position two months afterward. In 1841, however, he was reinstated. His oppression and misgovernment resulted in his being driven from power 1846, May 17. In 1849, however, he was reappointed prime minister, but only to inaugurate a still more stringent dictatorship. Impoverishing the people by his unscrupulous system of expenditure, contracting new loans, and imposing new taxes, the outcry against him became so irresistible that his own brother Sylva, a member of his cabinet as minister of justice, would not any longer serve under him, and became leader of the opposition in the Cortes, which body was now determined on his overthrow. In the meantime, however, Saldanha set on foot a revolution at Cintra, which spread rapidly over the whole kingdom, and put an end to Costa-Cabral's administration 1851, Feb. 26. Saldanha became prime minister of Portugal, and Costa-Cabral fled to England. He was ambassador to Brazil 1859–61.

COSTA, Isaac da: poet and religious writer. 1798, Jan. 14—1860, Apr. 28; b. Amsterdam. His parents were Portuguese Jews, who settled in Holland. In his twentieth year, Costa acquired the degree of doctor at law, and shortly afterward embraced Christianity and was baptized. This subjected him to considerable persecution, which, however, subsided as his genius gradually gained recognition. The most interesting of his writings to the English-speaking public are probably his translation of Byron's *Cain*, his *Israel and the Gentiles*, and *Harmony of the Gospels*, the last two of which have been translated into English. As a public lecturer, Costa specially excelled. His *Battle of Nieuwpoort*, the last of his poems, is one of his masterpieces.

COSTA, Lorenzo, Italian painter: b. Ferrara about 1460; d. Mantua 1535, March 5. He was employed to decorate the choir of the Church of San Domenico in Ferrara, and was invited to the ducal court, where he painted a number of portraits of princes and nobles. Shortly afterward we find him at Ravenna, at Bologna, where he executed a *St. Sebastian Pierced by Arrows*, a *Virgin*, a *Saint James*, a *Saint Jerome*, etc. At Mantua, whither he was invited by Francesco Gonzaga, he painted the greater number of the pictures in the palace, then being restored by that prince. He left behind him a reputation for keenness of observation, correctness in design, and great simplicity and grandeur in form, together with harmonious grouping.

COSTA, Sir Michael: 1810, Feb.—1884, Apr. 29; b. Naples: popular musician and composer. As he early showed talent for music, he was sent to the Conservatoire in his native city for education, where he greatly distinguished himself. In 1829, his fame, though he was then but 19, having reached England, he was invited to take part in the Birmingham Musical Festival; and being well received, he resolved to settle in England. In 1832, he was appointed conductor of the music at the King's Theatre, London, an office which, in 1847, he resigned for a similar one in the Royal Italian Opera, Covent Garden. His great work, the oratorio *Eli*, produced at the Birmingham Festival 1855, raised him to eminence as a composer. *Naaman*, first sung in Birmingham, 1864, was a great success. From 1857 onward, he conducted at the Handel Festival. He was knighted by the Queen, 1869; and in the same year received an order from the king of Würtemberg, in token of his majesty's admiration of *Eli*. Costa was the author of several ballets, and of some operas, the most successful of which was *Don Carlos*. As a composer, he holds a respectable place in the second rank.

COSTARDMONGER, n. *kŏs'tèrd-mŭng'gėr*—now spelt Cos'termon'ger, n. *kŏs'tėr-* [*OE.*, *costard*, a large apple, and *monger*]: one who sells fruit, fish, or vegetables in the streets of a town in a barrow or small cart. Cos'tard, n. in *OE.*, the head; a large apple.

COSTA RICA.

COSTA RICA, *kŏs'tā rē'kâ:* most south-easterly state of Central America; occupying the entire breadth from sea to sea between Nicaragua and New Granada: n. lat. from 8° to 11° 16′, w. long. 81° 40′ to 85° 39′; 23,233 sq. miles.

The surface of C. R. is occupied chiefly by mountains, plateaux and valleys. Both the e. and the w. coasts have a general n.w. and s.e. direction, but they differ considerably in character. Along the Caribbean Sea the coast is bordered by a narrow plain, is indented by creeks and small bays, and its chief harbor is Port Matina. The w. coast is much more broken. At its s. extremity is the Gulf of Dulce; further n. is Port Montas and beyond that is the bay formed by the Rio Estrella. The Gulf of Nicoya some distance n. has a wide entrance, but becomes narrower inland, is 70 m. long, affords good shelter for shipping, and contains several islands. The Punta de Arenas on the e. side of the gulf has an excellent harbor and is the port of San José, the capital. Another good harbor on this coast is the Punta Culebra, formed by the rocky headland, Punta Catalina. The mountains belong to the Cordilleras range, and contain many volcanic peaks of considerable height. While the general elevation of the range is 5,000–6,000 ft., Turrialba rises 12 500 ft , Blanco, 11,740, Cartago, 11,400, Chiriqui, 11,265, and Los Votos 9,840. Toward the Caribbean Sea the descent is for the most part abrupt, but terminating 20–30 m. from the sea; toward the Pacific the descent is more gradual, while the highland advances much nearer to the sea and descends to it in a series of terraces. The n.e. extremity of the country subsides gradually into the plain of Nicaragua. The most important river of C. R. is the San Juan, which issues from the s.e. extremity of Lake Nicaragua, and from that point to its outlet in the Caribbean Sea forms the boundary between the republics of C. R. and Nicaragua. Among the numerous rivers which enter the Caribbean Sea are the Matina, the Purissima, and the Tortuga; the chief of those falling into the Pacific are the Estrella, the Arena, and the Baranca. The climate of C. R. is on the whole more regular and healthy than in other parts of Central America. There is a dry season Nov. to Apr., and a wet season through the remainder of the year. The thermometer seldom rises above 85° or falls below 65°. The soil is of varied quality, but in many parts very fertile. Large quantities of timber, especially Brazil-wood, mahogany, and cedar are exported. In the w. and n.w. portions, wheat, maize, sugar, and coffee are abundantly grown; fruits and vegetables are prolific; sheep thrive on the tableland, swine in the low districts, and cattle along the San Juan. In minerals, rock crystal and placer gold are found in the Cuesta Blanca; onyx in Pacaca; amethysts in the Colorado salines and the Barbudal Mountain, where there is also handsome jasper; opals in Candelaria; labradorite in the mountains n. of Raicero; Kaolin in San Ramon; lime for cement in Candelaria; phosphate of lime in San Antonio; and iron ore on the coast at Sardinal. C. R. is divided into six provinces, San José, Cartago, Heredia, Alajuela, Punta de Arenas—with capitals of the same name, and Guanacaste, cap. Liberia. The chief

cities are San José (pop. 30,000), on the elevated tableland, 9° 46′ n. lat., 84° w. long.; a modern city, 4,500 ft. above the sea; Cartago, at the base of the volcano of that name, 16 m. e. by s. of San José; formerly the capital; almost entirely destroyed by an earthquake 1841; and Alajuela, about midway between San José and Punta de Arenas.

Government.— The govt. of the republic, prescribed by the constitution of 1859 and the amendments of 1871 and 82, is vested exclusively in a pres. elected for a term of four years, and ineligible for re-election; and legislatively in a single chamber of representatives of 32 members elected for four years, one-half retiring every 2 years—one representative for every 8,000 inhabitants. The chamber is chosen in electoral assemblies, whose members are elected by the votes of all persons of age who are able to support themselves. The judicial authority is vested in a supreme court of 11 judges, elected by congress every 4 years. It is divided into two courts of appeals, each with 3 judges, who decide the cases in second instance; and the court of cassation, with 5 judges, whose mission is to see that the law is correctly applied in all suits. There are also criminal courts, and subordinate judges called mayors, throughout the republic. Each province has a governor and commandant-at-arms, appointed by the president.

Commerce and Finance.—The internal debt 1901 was less than 7,000,000 pesos, and the total foreign debt £2,080,000, bearing 5 per cent. interest. Revenue was about 8,700,833 gold colones, and the total expenditures 9,319,192. The revenue of the government is derived from custom-house duties, the liquor monopoly, tobacco, stamped paper, post-office, etc. The export duty on coffee was abolished 1901, Sept. 1. The money standard is gold, adopted 1896. The unit is the colon (value in U. S. money, $0.465); the gold coins are 2, 5, 10, and 20 colons; silver coins, 5, 10, 25, and 50 centimos; 1 colon = 100 centimos. In 1901 the imports were valued at $4,410,422.45 and the exports $5,583,197.91. About one-half, or $2,823,291.32 of the total exports consisted of coffee. Of the total imports in 1902, $4,178,284.80, the United States sent $2,048,809 and Great Britain $906,679. The telegraph lines are government property; there are about 100 offices and 1,300 miles of wire. There are two main lines of railway, one of which, the Costa Rica Railway and its branches, runs from Limón to the cities of the central uplands; the other, the Pacific railway, connects San José with the w. coast. There is steamship connection between Limón and United States ports, and between Limón and France, Germany, Italy, and other European countries, and also to Cuba, Jamaica, and South and Central American ports.

Education and Religion.— The latest statistics show 327 schools in 202 different localities, with 21,913 pupils, and for higher education there were several provincial insti-

tutes and the Liceo and the Colegio Superior de Señoritos —both the latter at the capital. There are also medical and law schools, a natural museum, a national library, the University of Santo Tomas, and the Physico-Geographical and Meteorological Institution. The state religion is Rom. Cath., but other forms are tolerated.

C. R. was discovered by Christopher Columbus, 1502, while on his fourth voyage to the new world. He anchored in the harbor of San Juan, made several landings, and because of the numerous specimens of gold found on the coast named the place La C. R. y Castilla de Oro. It was included in Guatemala and held as a province of Spain till 1821, Nov., when it became a part of the Mexican empire of Iturbide. In 1823, it united with Guatemala, San Salvador, Honduras, Nicaragua, and the territory of Mosquita in forming the Central American confederacy, and maintained this relation till 1840, when it withdrew and proclaimed itself an independent republic. It adopted a constitution 1847, was recognized by Spain and negotiated a treaty with her 1850, declared war against the American filibuster, William Walker, pursued him into Nicaragua and helped to force his surrender to the U. S. naval authorities 1856, and joined Guatemala, Honduras, and San Salvador in a treaty for the creation of a Central American republic 1889. On 1900, Sept. 11, by award of President Loubet of France, as arbitrator, the Columbian boundary was extended to Punta Correta on the Caribbean coast, thus depriving C. R. of an extensive territory which she claimed and which reduced her area to less than 22,000 sq. miles. Pop. (1903) 310,000. See CENTRAL AMERICA.

COSTEANING, n. *kŏs-tēn'ĭng:* in *mining*, the act or operation of sinking shallow pits at intervals, and driving headings at right angles to the general course of the veins, for the purpose of discovering ore.

COSTELLO, *kŏs-tĕl'o*, LOUISA STUART: 1815–70: English authoress. Her first production, at least of any note, was *Specimens of the Early Poetry of France* (1835), but it was as a tourist she gained the greatest popularity. The works in which she describes her travelling trips are—*A Summer Among the Bocages and the Vines* (1840); *A Pilgrimage to Auvergne*, etc. (1842); *Béarn and the Pyrenees* (1844); *The Falls, Lakes, and Mountains of North Wales* (1845); and *A Tour to and From Venice by the Vaudois and the Tyrol* (1846). Miss C. also wrote several novels, the principal of which are *The Queen-mother* (1841), and *Jacques Cœur, the French Argonaut* (1847). In 1853, she published a work professedly historical, entitled *Memoirs of Mary, the Young Duchess of Burgundy;* and in 1855, another of the same kind, *Anne of Brittany.*

COSTER, *kos'tĕr*, LAURENS JANSZOON, according to the Dutch, the inventor of printing; abt. 1370–1439; b. Haarlem. The time of the invention ascribed to him must have been 1420–26. C., at first for his own amusement and the instruction of his grandchildren, cut letters out of the bark

of the beech-tree, which he inverted, and employed to print short sentences. Afterward, he discovered a more glutinous kind of ink, which did not spread in using, and succeeded in printing with it entire pages with cuts and characters He also replaced his wooden types by types cast out of metal, at first using lead for this purpose, afterward pewter which he found harder and more suitable. C., for a time, worked in secret, because, he being a sacristan, his art, if known, would have brought him into unpleasant collision with the manuscript-writing clergy, whose productions he tried to imitate, even to the abbreviations; thus his name did not appear on the productions of his press. As custom increased, C. had to take apprentices; and one of them, a German, Johann, making use of the confusion occasioned by C.'s death, is said to have purloined the greater part of his master's types and matrices, and to have fled to Mainz, where he brought the hidden art to light. The Johann was probably Johann Gänsfleisch, a member of the Gutenberg family. Such, at least, is the history of the invention of printing as given by the Dutch, and which they support by the testimony of Hadrianus Junius, historian of the states of Holland, who, in his account of the discovery, states that, at the time he wrote, C.'s descendants were in possession of drinking-cups made out of the remains of the types which C. had used. Moreover, a celebrated printer of Cologne, Ulrich Zell, deceased about 1500, is said to have declared 'that Gutenberg *his master*, had derived his art from Holland, after the model of a *Donatus* printed there.' Now, a Donatus of C.'s time still exists; it was produced 1740 by Johannes Enschedé, also a celebrated printer of Haarlem; and no sooner had his discovery been made known in Meerman's *Origines Typographicæ*, than fragments of the same work appeared in such quantities, that no one could any more aver that this early monument of imperfect typography, mostly printed from indisputably Dutch types, had been struck off from Gutenberg's press. Gutenberg's works, even now, are models of impression; those ascribed to C., *at first printed on one side only*, are the first proofs of a beginner. Then, all the characters of the oldest Dutch printed books resemble the Dutch handwriting of the first half of the 15th c., a proof of the independent nature of the attempts toward imitating manuscripts for sale. Other evidences are given by the Dutch that C. was the true inventor of printing; the most eminent advocates of his claims being Meerman, Koning, Scheltema, Van Westreenen van Tiellandt, De Vries, Schinkel, Noordziek, Ebert, Leon de Laborde, Paul Lacroix, and Bernard. Yet the most thorough-going assault on the claims of C. and of Haarlem, as being founded on local legends, was made 1870 by a Netherlander, A. von der Linde. In the town-house of Haarlem, the typographical remnants of the productions ascribed to C. are preserved. See PRINTING: and for the German account of the invention, GUTENBERG. As for C., his memory still is held in due honor by the town of his birth: the

site of his house is still pointed out with pride; and monuments to his memory have been erected.

COSTIVE, a. *kŏs'tĭv* [L. *constīpārĕ*, to crowd closely together—from *con*, *stipārĕ*, to cram: contracted from F. *constipé*, constipated, or It. *costipativo*, having a tendency to constipate]: bound or confined in the bowels. COSTIVELY, ad. *-lĭ*. COS'TIVENESS, n. *nĕs*, obstruction in the bowels, with hardness and dryness of the fæcal matter.

COSTMARY, *kŏst'mā-rĭ* [Gr. *kostos;* L. *costus*, an aromatic plant, and *Mary*, the Virgin], *chrysanthemum balsamita*, *aromatic perennial plant* of the nat. ord. *Compositæ*, native of the south of Europe and of the northern U. S., long cultivated in Britain for the agreeable fragrance of the leaves. It is often called ALE-COST. The root-leaves are ovate, of a grayish color, on long footstalks; the stem is 2—3 ft. high; the stem-leaves have no footstalk; the small heads of flowers are in loose corombs, deep yellow. The leaves were formerly put into ale negus, and are still used by the French in salads.

COSTREL, n. *kŏs'trĕl* [L. *costrellus*, a wine-bottle]: in *OE.*, a wine-bottle which could be suspended by its ears from the waist-belt; a laborer's drinking-bottle.

COSTRO'MA: see KOSTROMA.

COSTS, in Law: expenses incurred in legal proceedings. As a general rule, the costs of the successful party are paid by the loser, but the rule is subject to important exceptions, among which are the following: A party suing or defending in *formâ pauperis* does not pay costs; though he is entitled to receive them if successful. Under a certain small amount, the decision as to costs in certain cases rests with the judge. A plaintiff who might have brought his action in a lower court, is not always entitled to costs if he sues in the higher courts. A party who is successful in the main, and therefore entitled to the 'general costs,' may be unsuccessful upon some minor point, and therefore bound to pay the costs which belong properly to it. A party who has tendered the amount recovered, and who pays the sum into court, and pleads the tender, is not bound to pay costs. The payment of money into court in the course of an action relieves the party paying from costs of subsequent proceedings, if no greater amount be ultimately recovered.

In Britain, the crown is now entitled to costs, and bound to pay costs in the same way as a private suitor. In the United States, when the U. S. govt. is a party, it neither pays nor receives costs, except under a special statute. In equity, the giving of costs is entirely at the discretion of the court which, however, is exercised generally according to fixed principles. In criminal cases, the prosecutor's costs may be allowed by the judge. The statutes that give costs must always be construed strictly according to the letter.

Costs are taxed (i. e., the items allowed or disallowed) by the officer of the court appointed for the purpose. When

so ascertained, they are, if in favor of the plaintiff, included in the amount for which judgment is given, if it be in his favor, and recovered as part of it. If they are in favor of the defendant, they are recovered as a judgment in his favor.

C., in Scotland, are called expenses (q.v.): see also AUDITOR OF THE COURT OF SESSIONS.

COSTUME, n. *kŏs-tūm'* or *kŏs'tūm* [It. and F. *costume*]: style of dress; the mode of dress peculiar to any people or age. COSTUMER n. *kŏs-tūm'ér*, or COSTUM'IER, n. *-ĭ-ér*, one who makes and deals in fancy dresses.—SYN. of 'costume': dress; attire; apparel; array; clothes; clothing; habit; garment; vesture; vestment; raiment.

COSTUME': dress; another form of the word custom, and, in its wider sense, the external appearance which the life of a people presents at a particular epoch of its history. In its narrower and more usual sense, C. signifies the customary modes of clothing and adorning the person, in any particular age or country. In this sense, it includes the prevailing fashion in jewelry, weapons, and other personal equipments. In both senses, C. plays an important part in art. The poet, especially the narrative or epic poet, is compelled to resort to it as a means of carrying his reader back into the age which he describes. Homer has it constantly in view in narrating the exploits of his heroes. Among modern romance-writers, Sir Walter Scott has introduced the fashion of perhaps excessive attention to mere external costume. But it is in art as presented to the eye that C. becomes indispensable, and the loose and general treatment of it permitted to the novelist or the poet is forbidden to the painter, the sculptor, and the player. How sorely the sculptor has been tried by the wigs and breeches of former generations, and by the trousers, straps, hats, and other monstrosities of our own, no one needs be told. Two means, not of solving but of escaping from the difficulty, have been largely resorted to: one consists in departing from the modern dress altogether, and reverting to the ancient toga; the other, in wrapping up the figure, as far as possible, in a cloak. The first of these devices is neither more nor less than a deliberate violation of what artists regard as the laws of C., by which they conceive themselves bound to represent every object with its appropriate accessories; the second, besides being very often open in a lesser degree to the same objection, has the further disadvantage of accomplishing its object very imperfectly. The wisest course for the artist is boldly to face the difficulty. That he may do so successfully, many of the works of Rauch, Tieck, Thorwaldsen, Schadow, and others abundantly testify. In the earlier stages of art, an excessive attention to C. may generally be remarked, which though useless, and sometimes hurtful to artistic effect, has proved of great value for historical purposes. The tendency of the earlier schools of art to exhibit C. with an almost painful accuracy and minuteness, is exhibited in the works

of the older masters, both of the Italian and German schools. Even during the period of the highest bloom of Italian art, the mediæval custom of representing historical, sacred, and ideal characters in the C. peculiar to the time and country of the artist, was in a great measure adhered to. From Paul Veronese, Tintoretto, and others, we may learn the aspect which a marriage-feast in the palace of a Venetian or Florentine grandee presented, but can form little conception of the C. of that simpler festivity in Cana of Galilee, or of that supper still less sensuous in Jerusalem, which they profess to represent. In the hands of the greater masters, these scenes assumed an ideal character; and in the works of Michael Angelo, Leonardo, and Raphael, C., though still exhibiting something of a native trace, rises into the highest regions of poetical conception. The effort to avoid anachronisms by a previous historical and antiquarian study of the subject, belongs, indeed, almost entirely to the modern European schools of art, and many painters of late have devoted themselves to it to such an extent as almost to forget that it is a means, and not an end, except, indeed, to a mere painter of clothes.

But it is in theatrical representations that attention to C., particularly in its narrower sense, becomes most imperative. When the stage, in Western Europe, commenced in the religious mysteries of the middle ages, the dress adopted was that which belonged to the time and the country. To this dress some fantastical object was generally added to indicate the character intended to be personated. The case remained thus during the time of Shakespeare in England, of Lope de Vega and Calderon in Spain, and even of Corneille, Racine, and Molière in France. Whether a Greek, a Roman, an Assyrian, or a Turk was represented, the ordinary court-dress of the time was adhered to, and the turban, the helmet, or the laurel-crown was placed on the top of the peruke or the powdered hair. In like manner, shepherdesses and peasant-girls had their hair dressed in turrets like feudal keeps, and long white kid gloves which covered their hands and arms to the elbow. Toward the middle of the 18th c., a reform was introduced by the famous actress Clairon, who acted Electra without hairpowder; but Talma was the first who introduced a C. really true to history. Garrick followed in the footsteps of the great Frenchman, though both he and Siddons, during their earlier period, personated Shakespeare's characters in 18th c. C. Schlegel's *Hermann*, and Goethe's *Götz von Berlichingen* were the first plays given in Germany with historical costume. See Planché's *Cyclopædia of C.* (2 vols. 1876–79), and Fairholt's *C. in England* (3d ed., 2 vols., 1885).

COSTUS, or Costus Arabicus, *kŏs'tŭs ar-ăb'ĭ-kŭs:* aromatic, much esteemed by the ancients, probably the dried root of *Aucklandia Costus*, plant of the nat. ord. *Compositæ*, sub-ord. *Cynarocephalæ;* native of the moist open slopes surrounding the valley of Cashmere. The roots are there burned as incense. They have a strong aromatic pungent odor, and are used in protecting bales of shawls from moths.

The name Costus is also given to a genus of endogens, ord. *Zingiberaceæ*. The roots of Costus *speciosus* are used in India and elsewhere as a preserve.

COSWAY, *kos'wā*, RICHARD: 1740–1821; b. Tiverton, Devonshire, England; noted painter in his day. Between his 14th and 24th year, he carried off five premiums from the Soc. of Arts. As a miniature-painter, he was particularly famous, and gained all the patronage of the nobility of his time. His works, in fact, were the fashion, and all attempts at rivalry were useless. Many of them were distinguished by great delicacy, correctness, and beauty, and his drawings were not unworthy of a place beside some of the old masters. The immense sums of money which he made enabled him to live in the most sumptuous style, and to give musical-parties (his wife on such occasions being the principal performer), so far surpassing all other efforts of the kind that they formed a feature of the time, and were attended by the rank, fashion, and intellect of that day.

COSY, a. *kō'zĭ:* see COZY.

COT, *kōt*, PIERRE AUGUSTE, French painter: b. Bedaueux 1838, Feb. 17; d. Paris, 1883, Aug. 18. He studied under Cogniet, Cabanel, and Bouguereau. Among his works are: *Spring Time; Prometheus; Moreille; The Swing;* and *The Storm*, often called *Paul and Virginia* (in the Metropolitan Museum, New York).

COT, n. *kŏt* [Fin. *koti*, a dwelling-place; *kota*, a mean house: Dut. *kot*, a hut]: a small house or cottage; a hut.

COT, n. *kŏt* [Ger. *zote*, a cot, a lock of wool clung together; *kotze*, a rough shaggy covering: pro. Eng. *cot*, a matted fleece of wool: mid. L. *cottus*, a rug, a rough covering]: originally a mat of shaggy materials, then an inartificial sleeping-place, where a rug or mat may be laid down for that purpose; a small bed: a swinging bed-frame or cradle; a sleeping-place in a ship, usually of canvas, stretched out on a wooden frame and holding a mattress—the whole being slung from the rafters of the cabin.

COTE, v. *kōt* [F. *côte*, a rib, a shore or coast—from L. *costa*, a rib]: in *OE.*, to coast or keep alongside; to pass or go by; to leave behind; to overpass. COT'ING, imp. COTED, pp. *kōt'ĕd*. COTE-LETTE, n. *kōt-lĕt*, [F.], a cutlet.

COTE, n. *kōt* [AS. *cote;* W. *cwtt*, a cavity, a hovel: Gael. *coit*, a fishing-boat—*lit.*, a shelter, as of an inverted coracle or fishing-boat]: a pen or shelter for animals, as sheep-cote, dove-cote; a cottage.

CÔTE-D'OR, *kōt-dōr'*: dept. in the e. of France, formed of part of the old province of Burgundy; lat. 46° 55′—48° 10′ n., long. 4° 2′—5° 30′ e.; 3,383 sq. m. The surface is in general rather elevated, and is traversed by a chain of hills forming the connecting-link between the Cevennes and the Vosges. A portion of that range, called the Côte-d'Or ('golden slope'), receives its name (which it gives to the dept.) on account of the excellence of the wines pro-

duced on its declivities: see BURGUNDY WINES. A great part of the dept. is covered with forests. The valleys and plains are fertile, and there is good pasture-land; but agriculture is in a backward state. Côte-d'Or is watered by the Seine, which rises in the n. w., and by several of its affluents; by the Saone, and by the Arroux, a tributary of the Loire. By means of canals, Côte-d'Or has water communication with the German Ocean, Mediterranean, English Channel, and Bay of Biscay. The climate is temperate; iron, coal, marble, gypsum, and lithographic stones are found, the first in large quantities. Côte-d'Or is divided into four arrondissements; viz., Beaune, Châtillon-sur-Seine, Dijon, and Semur, with Dijon for a capital. Pop. (1901) 361,626.

COTEMPORANEOUS, COTEMPORARY, etc.: see under CONTEMPORANEOUS.

CO-TENANT, n. *kō-tĕn'ănt* [*con* and *tenant*]: a tenant in common.

COTERIE, n. *kō'tėr-ē* [F. *coterie*, a club, a society—from mid. L. *cōtārĭŭs*, a neighbor—from mid. L. *cōta*, a cot]: a friendly party:.a circle of familiar friends, particularly of ladies; a select party. *Note.—Littré* connects *coterie* with OF. *coterie*, servile tenure—from mid. L. *coterĭă*, a tenure of land by cottars who clubbed together: OF. *cottier*, a cottar—from mid. L. *cota*, a cot.

COTERMINOUS; see CONTERMINOUS.

COTES, MRS. EVERARD (SARAH JEANETTE DUNCAN): b. Brantford, Ont. 1862; was educated at the Collegiate Institute there and fitted herself for teaching; abandoned this profession, however, and took up journalism; served several papers in varied journalistic work. In 1891 she married Everard C. Cotes of the Indian Museum, Calcutta. Chief works have been: *A Social Departure; The American Girl in London; A Daughter of To-Day; Vernon's Aunt; The Simple Adventure of a Mem-Sahib; His Honor and a Lady; The American Girl Abroad; The Imperialist; Set in Authority; Those Delightful Americans; The Pool in the Desert.*

COTES, *kōts*, ROGER: 1682, July 10—abt. 1705; b. Burbage, near Leicester, England. He was the author of the admirable preface explaining the Newtonian philosophy, and answering objections to gravitation, prefixed to the second edition (1713) of Newton's *Principia*. Various mathematical papers of his own, tending greatly to the development of logarithms, were published after his death. Short as his life was, his influence on mathematics is clearly traceable. He was held in the highest esteem by the scholars and scientific men of his time; and Sir Isaac Newton is asserted to have said of him that, had he lived, 'we should have known something.'

CÔTES-DU-NORD, *kōt-dü-nōr'* (northern coasts): dept. in the n. w. of France, forming a part of Bretagne, and bounded n. by the English Channel, in which are several

small islands belonging to Côtes-du-Nord; lat. 48° 3′—48° 57′ n. long. 1° 53′—3° 35′ W.; 2,659 sq. m.; pop. (1901) 609,349. The Armoric Hills, called also the Montagnes Noires, and the Menez Mountains, cross the dept. from c. to w., having a breadth of about 16 m., and consist chiefly of granite and clay-slate. These formations give a rude and broken aspect to the coasts. The chief rivers, short but navigable, are the Rance, Gouet, Trieux, Guer, and Arguenon. The s. district has the advantage of a considerable length of the canal between Nantes and Brest. Though a great portion of the south and the higher plains is occupied by heath and woods, there are, here and there, fertile spots; and in the north the influence of the neighboring sea is favorable to vegetation. The cultivation of flax and hemp, with pasturage and iron-mining, supply employment in the mountainous districts; while in the sheltered valleys and on the coast-levels all European kinds of grain, with pears and apples and other fruits, are produced; and maize is cultivated, but does not always ripen. The coasts are well supplied with various kinds of fish. The dept. is divided into the five arrondissements of St. Brieuc, Dinan, Loudéac, Lannion, and Guin-gamp. The chief town is St. Brieuc.

COTGARE, n. *kŏt′gär* [Eng. *cot*, refuse wool; prov. Eng. *gare*, accouterments]: refuse wool.

COTHEN, or Köthen, *kö′tėn:* an ancient town in the duchy of Anhalt, on a tributary of the Saale. Sugar from beetroot is largely manufactured here; spirits are distilled; and there is a trade in wool and corn. Brown coal is found in the neighborhood. Pop. 16,155.

COTHURN, n. *kō-thėrn′*, or Cothurnus, n. *kō-thėr′nŭs* [L. *cothurnus;* Gr. *kothornos*, a high hunting-boot among the Greeks]: *among the anc.*, the buskin or boot worn by actors in tragedy, while the *soccus* or *sock* was a shoe worn by the comic actor; tragedy: see Buskin. Cothur′nal, a. tragic; solemn.

COTICE, Cottise, *kŏt′ĭs*, or Cost, *kŏst*, in Heraldry: one of the diminutives of the Bend (q.v.).

COTICULAR, a. *kō-tĭk′ū-lėr* [L. *coticula*, dim. of *cos*, a whetstone]: pertaining to a whetstone; like a whetstone or suitable for it.

CO-TIDAL LINES, *kō-tī′dal:* lines on a chart or map, showing the places of high tide at the same moment.

COTILLION or Cotillon, n. *kō-tĭl′yŭn* [F. *cotillon*, a little petticoat—from *cotte*, a petticoat]: a lively dance of French origin, engaged in by eight persons—so named because petticoats were seen as the women danced. The quadrille which superseded it is only a new variety of the cotillion.

COTINGA, *kō-tĭn′ga* (*Ampelis*): genus of birds of the family *Ampelidæ*, or Chatterers (q.v.), having a rather feeble and deeply-cleft bill, and feeding both on insects and on fruits. They are natives of S. America, inhabit

moist places; and are remarkable for the splendor of plumage of the males during the breeding-season. Azure and purple are then their prevalent colors. During the rest of the year, they are clothed in a tame gray or brown.

COTLANDER, n. *kŏt'land-ėr:* a cottager who keeps a horse for plowing his small piece of land.

COTO, *kō-tō,* the reddish-brown, aromatic and slightly bitter bark of *Palicourea densiflora,* order *Rubiaceæ,* a tree of South America.

COTONEASTER, *ko-tōn-ĕ-ăs'tėr:* genus of plants of the nat. ord. *Rosaceæ,* sub-ord. *Pomaceæ,* having polygamous flowers; a top-shaped calyx, with five short teeth; five small, erect petals; erect, short stamens; and a top-shaped fruit, the nuts of which adhere to the inside of the calyx, but do not cohere in the centre. The species are numerous, shrubs or small trees; some of them evergreen; with simple undivided leaves, more or less woolly beneath; small flowers in lateral cymes; and small fruit not agreeable to the palate, but the bright color of which, and its remaining on the tree in winter, make them very ornamental. *C. vulgaris* is a deciduous species, a native of hills in Europe and Siberia. *C. tomentosa* is found also in the Alps. Most of the species are natives of mountainous parts of Asia; they are sufficiently hardy for the climate of Britain, and have become there common ornamental shrubs. Some of them, as *C. rotundifolia* and *C. microphylla*—both from the north of India—are much planted for covering walls.

COTOPAXI, *kō-tō-păks'ē:* loftiest active volcano in the world, is in Ecuador, in the e. chain of the Andes, abt. 50 m. s. of the equator. Humboldt gave the height at 18,800 ft.; Reiss, the first to ascend it (1872) found it 19,500 ft. above the sea. The valley at its foot, however, is itself 9,000 ft. high. The upper part of Cotopaxi, a perfect cone of 4,400 ft., is entirely covered with snow, except that the verge of the crater is a bare parapet of rock. Whymper, who ascended (1880) to the edge of the crater, gives the height as 19,600 ft. Below the snow is a well-marked barren belt covered with lichens and shrubs, below which again is forest. Smoke issues from the summit; sounds as of explosions are occasionally heard; and above, a fiery glow is often visible by night. Lava rarely flows even during eruptions, but flame, smoke, and immense volumes of ashes are then ejected; and when the heat melts large masses of the snow lying on the sides, destructive floods are occasioned in the valleys beneath. The first eruption recorded was in 1533. Others followed in 1698, 1743, 1744; and in 1768, most terrible of all. On the latter occasion ashes were carried 130 m., and thickly covered an extensive area. Cotopaxi was quiet till 1851. In 1854, 1855, and 1856 there were eruptions of more or less violence.

COTQUEAN, n. *kŏt'kwēn,* [cot, quean]: a man who meddles with housewife affairs.

COTRONE, *kō-trō'nā:* town of Italy, province of Catanzaro, on a point of land projecting into the sea; lat. 39° 7′ n., long. 17° 10′ e. Pop. (1891) 9,649. It is almost surrounded by the Esaro (ancient Æsarus), which here has its embouchure. Cotrone is very strongly fortified. Its streets are dark and narrow, and its port of no importance. Cotrone possesses interest from its antiquity and historic associations. It owes its origin to a colony of Achæans, as far back as B.C. 710, its ancient name being Croton or Crotona. It soon became prosperous, wealthy, and powerful. Its walls measured 12 m. in circumference, and the territory over which it extended its sway was considerable. Its inhabitants were celebrated for athletic exercises, and they carried off most of the prizes at the Olympic games. Milo was its most renowned athlete. Pythagoras settled here about the middle of B.C. 6th c.; but the influence which he exercised by means of a league of his formation, became obnoxious to the citizens, and he was expelled. About B.C. 510, Cotrone sent forth an army of above 100,000 men to fight the Sybarites, who were utterly defeated, and their city destroyed. The war with Pyrrhus completely ruined the importance of Cotrone, and B.C. 2d c. it had sunk so low, that a colony of Romans had to be sent to recruit its well-nigh exhausted population. It never recovered its prosperity. Some ruins of the old are near the modern city, the most important of which is a Doric column, part of a once magnificent temple to Juno, on Cape Colonne or Nau (the Naus of the ancients).

COTSWOLD, n. *kots'wōld* [AS. *cote*, a hovel; *wold*, a wood]: inclosures for sheep in an open country; a breed of sheep. COTSWOLD HILLS, or COTESWOLD, range of oolitic and lias hills, traversing the middle of Gloucestershire, England, from Chipping Camden, in the n.e., by Cheltenham and Stroud, to near Bath in the s.w. They are parallel to the Avon and Severn, and separate the Lower Severn from the sources of the Thames. They are 54 m. long, and in some parts 8 broad, and cover 312 sq. m., with an average height of 500 to 600 ft. The highest points are Cleave Hill, 1,134 ft., and Broadway Hill, 1,086 ft. The soil is a clayey loam, with gravel and stone-brash. The surface is generally bare, with little wood; corn, turnips, and sanfoin are grown, and coarse-wooled sheep fed on them. At Stroud, they are crossed by the Thames and Severn Canal, and the Swindon Junction railway.

COTTA, *kot'â:* name of a very old German publishing-house, established at Tübingen 1649, and still one of the most flourishing in Germany. The family came from Italy about the beginning of the 15th century.

JOHANN FRIEDRICH FREIHERR VON COTTA was the most prominent member of the family, a theologian, and one of the most eminent publishers that Germany ever produced: 1764, Apr. 27—1832, Dec. 29; b. Stuttgart. He was educated at the Univ. of Tübingen, and for some time practiced as an advocate. In 1787, he undertook to conduct

the family book-trade at Tübingen; and in 1795 established the *Horen*, a literary journal, under the editorship of Schiller. In the same year, he commenced two larger periodicals, the *Politischen Annalen*, and the *Jahrbücher der Baukunde*. In 1798, he established the *Allgemeine Zeitung* (at Augsburg, now published at Munich), the *Almanach für Damen*, and similar works. Cotta now began to publish the works of the illustrious modern authors of Germany, such as Goethe, Herder, Fichte, Schelling, Jean Paul, Tieck, Voss, Therese Huber, Matthisson, the Humboldts, Joh. von Müller, and Spittler. Besides the periodicals already mentioned, Cotta established the *Morgenblatt* and the *Literaturblatt*, and carried on the *Kunstblatt*, founded by Schorn. In 1810, he went to live at Stuttgart. The nobility of his family, which dated far back, was confirmed in his person under the title of Freiherr Cotta von Cottendorf. In 1824, he introduced the first steam-press into Bavaria, and shortly afterward founded at Munich the Literary and Artistic Institute. Cotta's political principles were liberal, but temperate. In the diet of Würtemberg, and afterward as pres. of the Second Chamber, he was always the fearless defender of constitutional rights. In manners, Cotta was simple and pure; and though covered with titles and orders from different governments, he had neither the pride nor the selfishness of a hereditary patrician. The first Würtemberg proprietor who abolished servitude on his estates, Cotta also furthered the interests of his farmers by establishing model-farms, and by setting an example in all rural improvements.

COTTAGE, n. *kŏt'tĭj* [mid. L. *cotāgĭŭm*, a serf's dwelling: Fin. *koti*, a dwelling place: AS. *cote*, a hovel (see COTE 2)]: any small detached house; a small country house. COTTAGER, n. *er*, one who lives in. COT TER, COT TAR, n. *kŏt'ter*, and COT TIER, n. *kŏt'yėr*, contractions for cottager. COTTAGE ORNE, *ōr nā* [F. *orné*, adorned, decorated]: a cottage of a superior and ornate character, the residence of one in good circumstances. COTTAGE-PIANO, n. a small upright piano.

COT TAGE: small dwelling-house, detached from other buildings, and usually one story in height. Originally applied to a humble order of dwellings in the country, the term Cottage now embraces a wide variety of structures, from the cottage *orné* of the French, to the simple but not unattractive cabin in the English rural districts, and the mountain *chalet* of Switzerland. In old English law the building of cottages in the rural districts was discouraged. No one was allowed to erect a cottage unless four acres of freehold land were attached to it; and no more than one family was to inhabit it. The general subject of proper cottage accommodation as regards the peasantry of England and Scotland has received much attention from sociologists and philanthropists. In the U. S. the term cottage is frequently applied to the wooden frame houses built at seashore and mountain resorts for summer use.

COTTAGE GROVE, Ore., a city of Lane County, at the head of the Willamette Valley, near the foothills of the Calipora mountains. It is located on the Willamette River and on the Southern Pacific R.R., 144 miles south of Portland. It is the terminus of the Oregon & Southeastern R.R. Cottage Grove was first settled about 1850. The principal industries are lumber, stock-raising and farming, planing and sawmills, etc. The city has a well-equipped electric light plant, and water is supplied by a gravity system, owneded by the city. There are gold and quicksilver mines in the vicinity of Cottage Grove, and the surrounding country is covered with forests of fir and cedar timber, constituting one of the best remaining tracts of timber on the Pacific Coast. Pop. (1904) 2,200.

COTTBUS, or KOTTBUS, *kŏt'bôs:* town of Prussia, province of Brandenburg, on the Spree, about 70 m. s.e. of Berlin. It is an ancient place, surrounded by walls, and it has an old castle with towers, a royal palace, a gymnasium, and manufactures of beer, woolens, linen, leather, and tobacco. Pop. (1885), 23,265.

COTTER, n. *kŏt'tẽr* [a probable corruption of CUTTER]: a wedge-shaped piece of wood or other material employed to fasten the parts of a structure; a key: see GIB.

COTTIDÆ, *kŏt'tĭ-dē:* family of spiny-finned fishes; type, *Cottus.*

COTTIN, *ko-tăng*, SOPHIE, 1773–1807, Aug. 25; b. Tonneins (Lot-et-Garonne): popular French authoress. Her maiden name was Ristaud. Educated at Bordeaux, she was married, when only 17 years of age, to M. Cottin, a Parisian banker, who left her a widow at the age of 20. She had early shown a love of literature; and to cheer the solitude of her affliction (for she had no children), she betook herself to the composition of verses, and even ventured on a long history. But in fiction she was destined to win unfading laurels. In 1798, appeared *Claire d'Albe;* in 1800, *Malvina;* in 1802, *Amélie Mansfield;* in 1805, *Mathilde;* and in 1806, *Elisabeth, ou les Exilés de Sibérie*, a work which has been translated into most European languages, and has always been extraordinarily popular with the young.

COTTING, JOHN RUGGLES, M.D., LL.D: 1787–1867, Oct. 13; b. Acton, Mass.: scientist. He was educated at Amherst College, the medical school of Dartmouth College and Harvard Univ.; ordained a Congl. minister 1810, studied chemistry and the allied sciences, manufactured a line of chemical compounds never before attempted in this country, at Boston, 1812–15; was prof. of chemistry at Amherst College and the Pittsfield Medical School; and, removing to Augusta, Ga., 1835, made an agricultural and geological survey of Burke and Richland cos. on the invitation of the leading cotton-planters. A copy of his report with the analyses of the cotton lands, and finely executed maps and drawings, was solicited by the emperor of Russia for the Royal library. Subsequently he undertook a simi-

lar survey of the entire state, but had to desist from lack of funds. Among his published works are an *Introduction to Chemistry* (Boston, 1822), and *Synopsis of Lectures on Geology* (Trenton, 1825).

COTTLE, *kŏt'l*, JOSEPH: abt. 1774–1853; b. England: poet. In early life he was a bookseller, then became a publisher in Bristol, and brought out the first poems of Southey and Coleridge, 1796. He was noted for his steadfast friendship for those poets in their adverse days, as well as for his own poetical writings—*Malvern Hills*, *Alfred*, and *The Fall of Cambria*, *Reminiscences of Coleridge and Southey* (1847), and various essays.

COTTON, n. *kŏt'tn* [F. *coton;* Sp. *algodon;* Arab. *go'ton;* prov. F. *coutou*, wool, flock, cotton]: a soft downy substance resembling fine wool, consisting of hairs attached to the seeds of a plant grown in warm countries; the thread made from it; the cloth made from it; calico: ADJ. made of or pertaining to cotton. COTTONY, a. *kŏt'tn-ĭ*, soft like cotton. COTTON-GIN, *-jĭn*, a machine to separate the seeds from the cotton-wool. COTTON-PLANT, the various species of *Gossyp'ĭŭm*, ord. *Malvācĕæ*, producing the cotton of commerce. COTTON-PRESS, a press in which cotton is baled for transportation and storage. COTTON-THISTLE, the bookname for *Onopordon*, a genus of composite plants: see THISTLE.

COTTON, v. *kŏt'tn*, [W. *cytuno*, to agree, to consent]: to enter into close intimacy.

COTTON: important vegetable fibre, extensively cultivated in various parts of the globe.

Botanical and Commercial Classifications—Cotton is the produce of all the species of the genus *Gossypium*, which belongs to the nat. ord. *Malvaceæ*, and is thus allied to Mallow, Hollyhock, Hibiscus, etc., the general resemblance to which is very apparent, both in foliage and in flowers. The species are partly shrubs, partly herbaceous, and either perennial or annual; they are natives of the tropical parts of Asia, Africa, and America, but their cultivation has extended far into the temperate zones. They all have leaves with three to five lobes, which in a very young state are often sprinkled with black points, and rather large flowers, mostly yellow, but sometimes in whole or in part purple; the flowers very soon fall off; they grow singly from the axils of the leaves, and are surrounded at the base by three large, heart-shaped, cut or toothed, involucral leaves or bracts, partially growing together as one.

When considered commercially the fibre produced by the seed is the most valuable product of the cotton plant. Viewed under a good microscope it appears to be an irregular, flattened, twisted tube, the edges of which are somewhat thickened and corrugated. This twist distinguishes cotton from all other fibres, and it is to this character that its superior value for spinning is due. The fibre of some of the wild species of cotton does not possess this twist and such as do not are of little value. If not thoroughly matured the fibre is

more flattened, less twisted and thinner walled. Such fibres, if abundant in a sample, depreciate its value as they curl up, do not spin well nor dye evenly. Among the leading commercial types of cotton the fibre varies from ½ inch to 2 inches or more in length and is exceedingly fine, the extreme diameter measurements being 0.0084 to 0.0064 inches, the longest and finest fibre being of the Sea Island types. The commercial grading of cotton is as follows: Samples, the average fibre of which is under 0.98 inch (25 millimeters) in length are caled "short staple"; those between 0.98 and 1.17 inch (25 to 30 millimeters) are called "medium" and from

Cotton (*Gossypium tricuspidatum*).

1.18 to 1.57 inch (30 to 40 millimeters) are called "long staple." Those exceeding 1.58 (40 millimeters) are "extra long." The "long" and "extra long" fibre produced in the United States are all from Sea Island varieties and their hybrids, the shorter ones being usually Upland cottons of the *G. herbaceum* type. Other classifications adopted by the New York Cotton Exchange are: What are known as "full grades" are designated by the words "fair," "middling fair," "good middling," "middling," "low middling," "good ordinary" and "ordinary."

Cultivation.— Cotton is grown under a wide range of climatic conditions and in a great variety of soils. Ideal

GATHERING COTTON IN THE SOUTH.

conditions for its growth are a deep, mellow, rich soil, a warm steamy atmosphere with abundant moisture until the bolls are well developed, with drier atmosphere and soil while the fibre is ripening and being gathered. These conditions are more nearly approximated in the cotton districts of the United States than over any other large area. Dr. Wight, who has investigated the subject for India, says for the best development of fibre an increasing daily temperature during the period of greatest growth is required and the reason for the inferiority of Indian-grown cotton from American seed, as compared with that grown in the United States, is due to the fact that in India cotton planting depends upon the monsoons and the plant develops in a constantly decreasing temperature from seeding to gathering. Too cool weather in the spring stunts the plant; too much rain during the growing season makes the plants develop at the expense of boll production, renders the soil difficult of cultivation, and promotes the growth of weeds; drought stunts the plant and causes early maturing and a small crop of inferior quality; and frosts and cold nights cause the plants to turn brown and die. If the soil is too moist it should be drained.

The method of cultivation varies somewhat in the different countries where cotton is grown, but it is believed the system practised in the United States is the most nearly perfect. The methods adopted for the cultivation of Sea Island and Upland cotton differ somewhat in detail, but in general features they are alike. In the United States bedding up the land previous to planting is almost universally practised. Where manures or chemical fertilizers are used this is indispensable if economy is practised. The beds are raised 18 in. to 2 ft. in case of Sea Islands and less for Upland cotton. The fertilizer and drainage thus secured make a warm seed bed in the early spring. The beds are usually arranged to stand over the furrow of the previous year in which the old stalks and trash are thrown and covered deep enough to be out of the way of the plow. The seed is generally drilled in rows 4 ft. apart and when the plants attain their first true leaf and the shoots are 2 to 4 in. high, they are thinned 8 to 14 in. in the row. The date of cotton planting in the United States extends from Mar. 1 to June 1, the most of the crop being in by May 20. The earlier date marks the beginning in southern Texas and it grows later as one goes farther northward. The young plants begin to appear in about 2 weeks and the first true leaf is gained in 8 or 10 days. After the appearance of the true leaves the plant is no longer dependent upon the seed leaves for its nourishment and is less liable to injury by cold. The first blooms appear in southern Texas about May 15, and in Tennessee and North Carolina about July 10, with intervening dates for the intermediate regions. The first bolls open after an interval

of about 6 weeks from blooming and picking begins about July 10 in southern Texas, August 15 in the coast region of South Carolina and Georgia, with corresponding later dates elsewhere, and continues until after frost has killed the plants, the last picking often being made as late as December 10. For the Sea Island cotton in South Carolina and Georgia planting is usually done between April 1 and May 1, and picking begins about September 1 and continues until December. The reason for the prolonged picking season is the unequal ripening and opening of the bolls on the plant. The fields must be gone through a number of times and the ripe cotton gathered from the open bolls, or great loss will be occasioned by the shedding of the cotton. Cotton picking is the most tedious and expensive operation in cotton growing. It is mostly picked by hand into bags or baskets hung from the laborers' shoulders and all available laborers are given steady employment. The usual payment for picking cotton is from 30 to 50 cents a hundred pounds of seed cotton, expert laborers earning from $1.00 to $1.50 per day. After picking, the cotton is spread to dry and then ginned to remove the seed and baled for shipment to market.

Yield and Cost of Production.— The yield and cost of production of cotton varies widely with different localities. Differences in soil, available labor, methods of culture, etc., all exert varying influences upon the production and its profitableness. The yield of Sea Island cotton is seldom more than ⅓ bale to the acre and its cost of production is estimated at from 14 to 21 cents a pound. The yield of Upland cotton, which is by far the bulk of the crop, averaged 211 pounds per acre for the crop of 1900–1. According to Hammond the yield of lint cotton is from ⅓ to 1 bale per acre in the Pine Levels Region, ⅓ to 1¼ bales per acre in the Prairie Region of the Southern States, and ¼ to ½ bale per acre in the Table Land region. The cost of production is estimated by the same writer to average 5.88 cents per pound of lint cotton in the eastern cotton-producing States, and 5.68 cents per pound in the western States. Watkins has compiled, in 'The Cost of the Production of Cotton,' replies from 3,335 plantations representing nearly every cotton-producing county in the cotton belt, showing that the Upland cotton crop produced in 1896 cost an average of 5.27 cents per pound and sold at 6.70 cents per pound. Of those reporting, 2,659 were operated at a profit, the average cost of production being 4.90 cents per pound, and the average selling price was 6.78 per pound; 676 reported losses, the average cost of production being 7.62 cents per pound, with the selling price averaging 6.52 cents. These figures include all expenses of planting, cultivation, fertilizers, rents, ginning, marketing, etc., and while probably approximating the average cost of production under the present system of cotton culture in the South, cannot be

taken to show the minimum cost under improved methods.

Cotton Diseases and Insects.— Recent investigations have revealed the causes of a number of well-known diseases of the cotton plant. Some of these are due to disturbances in the nutrition and assimilation of the plant, others are caused by the attack of fungi, while still others are caused by the production of galls on the roots by minute worms called nematodes. Of the first class the mosaic disease or yellow leaf blight, the red blight, and the shedding of bolls are the most serious. These can be remedied to a great degree by better attention to the nutrition of the plants and drainage of the soils. Experiments conducted for a number of years at the Alabama Experiment Station indicate that liberal applications of kainit as a fertilizer would greatly reduce the liability to loss from the mosaic disease. The diseases due to fungi are of a different nature. The fungi find their way into the tissues of the plant, where they live parasitically, robbing the plant of its much needed nutriment and often causing destructive changes, resulting in the death of the plant.

Cotton is often seriously injured by insects of various kinds. Cutworms, plant lice, caterpillars, grasshoppers, stalk borers, etc., injure different parts of the plant, but the greatest damage done to the cotton crop by insects is caused by the attacks of the cotton worm or cotton caterpillar (*Aletia argillacea*), the cotton bollworm (*Heliothis armiger*), and the Mexican cottonboll weevil (*Anthtonomus grandis*).

Manufacturing.—When cotton has arrived at the mill the processes through which it must pass before being turned out as finished cloth are varied and more or less intricate. The most important step in the process of producing cloth from the raw materials is the spinning. This may be variously divided, each divison embracng a group of separate manipulations. The fibre must first go through a preparatory process. The bales have their ties cut and the bagging removed when the contents of a number are thoroughly mixed to secure a more uniform product. The cotton is then run through an 'opener' which cleanses the cotton from impurities, such as broken seeds, fragments of leaves and stalks, dirt, etc., and the individual fibres are thoroughly separated. It then goes to a machine that arranges the cotton into laps or rolls of an approximately uniform weight. From here it goes to the carding, combing, and drawing machines which straighten out the tangled mass, extract the very short fibres and secure the regular and uniform distribution of the fibres in parallel series. The 'roving machine' draws the 'silver,' as it is called, to a more uniform size and gives it a slight twist, after which the yarn is still more attenuated and twisted in the process

technically known as spinning. In some mills the process stops with the production of the yarn, while in others it goes to the loom and after various manipulations becomes the finished product. In all the processes the manipulations are rather complicated and a minute description of them should be sought under the technical topics of spinning and weaving, the process being quite similar for all fibres. Many different kinds of machines are employed, some of them of great complexity, yet so skilled do the operatives become that a single person can readily attend to the almost automatic workings of a number of the most intricate spinning mules. Just as the bale is generally considered the unit of the cotton crop, so the number of spindles and looms is taken to indicate the relative capacity of the mills manufacturing it. Great Britain leads the world in the number of its spindles, having had in 1901 over 46,000,000, followed by the continent of Europe with 32,000,000, the U. S. with 21,000,000, Asia (Japan, India, and China), with about 7,000,000 and Canada and Mexico with 1,100,000. In the U. S. the greatest development in cotton manufacturing during recent years has taken place in the Southern states. Prior to the civil war and for a number of years following it, but a very small proportion of the cotton crop was manufactured within the States where it was produced. During this time the development of the industry in the New England and other northern states was constant, the rate of increase being steadily maintained. In 1860 there were about 300,000 spindles and 6,700 looms in operation in the southern states as compared with 3,900,000 spindles and 93,300 looms in New England. In 1880 the same regions reported 542,000 spindles and 11,900 looms and 8,630,000 spindles and 184,700 looms respectively. In 1900, according to the twelfth census, the New England states produced from 1,829,678 bales materials valued at $191,690,913, while the southern mills from 1,479,006 bales turned out products valued at only $95,002,059. This difference is due largely to the character of the products, the staple goods of the southern mills being those classed as brown sheetings, while the northern mills turn out a finer product at a correspondingly increased valuation.

Of recent years there has been considerable interest in what are called 'mercerized cotton.' This process is an important adjunct to cotton manufacturing. The process consists of subjecting cotton or other vegetable fibres to the action of caustic soda dissolved in water, after which they are treated with pure water followed by dilute sulphuric acid and again washed. This treatment with chemicals causes both a physical and a chemical change in the fibre. The cotton after treatment instead of a flattened, twisted fibre is swollen, thickened, becomes cylindrical and the cell wall is

greatly thickened, with its cavity correspondingly reduced. The extent of this industry is already quite important; the additional value acquired by cotton so treated in 1900 is given in the twelfth census report at $697,490, more than 7,973,000 yards of cloth and 1,600,000 pounds of yarn having been mercerized.

Cotton By-products.— In the early days of cotton growing the lint was considered the only valuable product of the cotton plant. Modern ingenuity, however, has found a use for nearly every part of the plant, and if fully utilized the commercial value of the available by-products of the cotton crop reported upon in the twelfth census would have been more than $80,371,000, or about one-fourth the total value of the crop.

Distribution and Production.— Cotton may be cultivated in nearly all portions of the globe between lats. 35° n. and s. or in a broad zone running around the earth and embracing the tropics and portions of the temperate zones. Its most profitable cultivation at present is between lat. 20° and 35° n., although it is grown in Turkestan as far n. as 45°. During colonial times cotton was profitably grown in Pennsylvania, Delaware, and Maryland, and some is now grown in Kansas and Utah; however, the present limits of economic production in the United States is s. of lat. 37° n. or a line running through southern Virginia, southern Kentucky, Missouri, and the northern boundary of Oklahoma. It is also grown extensively in India and Egypt, these two countries and the United States supplying fully 95 per cent. of the world's crop. The estimated world's crop for 1900–01 was 13,858,000 bales, of which the United States produced 10,218,000 bales; India, including other Asiatic production, 2,390,000 bales; Egypt 1,100,000 bales, and South America 150,000 bales. For the countries other than the United States and possibly Egypt, the estimates of production do not represent the total crop, but only that portion that is marketed, and the most of it exported. India is known to have a large domestic consumption of cotton, but the amount cannot be estimated with any degree of accuracy. During the American Civil war, on account of the blockade of the southern ports, the price of cotton reached almost fabulous figures, and cotton culture was given quite a stimulus in Italy and other parts of southern Europe, as well as in Australia and elsewhere, but within less than 10 years the United States reasserted her supremacy in cotton production and was again supplying the bulk of the requirements of the world's trade. The limiting conditions of profitable cotton growing seem to be temperature and distribution of rainfall or ability to irrigate. An average summer temperature of 73° to 75° F., and a winter temperature of 45° to 48° F. seem to furnish the proper temperature requirements, and the average

distribution of rainfall of the southern states, the moisture needed for the production of the best quality of fibre. Elevation and proximity to the sea are important factors to be considered for producing certain types of cotton, as may readily be seen in the wide variation in the quality of staple produced in contiguous regions.

The beginning of cotton culture in the United States is a matter of much speculation, but that it was carried on in a desultory way for a century or more before becoming an important industry seems quite probable. In some of the earlier accounts of Virginia the writers claimed that cotton would grow in that colony as well as in any part of the world. Bancroft tells us that an experimental planting of cotton was made in Virginia in 1621, and the result was a subject of interest in America and in England. The industry spread rather slowly to the other colonies, but cotton-growing had become important before the Revolutionary war in the region now known as the cotton states. This was upland cotton. The history of the introduction and development of the culture of Sea Island cotton is better known. Sea Island cotton seed was brought from some of the West Indies, where it was indigenous, to Georgia in 1786, and it was at once found to be adapted to the coast region of that state. The following year, 1787, saw the introduction of this crop along the shores of South Carolina and Georgia, but its first recorded extensive production was in 1788, when Thomas Proctor raised 5,000 pounds upon a plantation near Savannah, Ga., and reported it to the Philadelphia Society for the Encouragement of Manufactures.

During the early days of upland cotton-growing, the lint was separated from the seed by hand, about four pounds being considered a day's task. This slow process precluded the rapid extension of cotton production. The roller gin in use for ginning the Sea Island cotton did not differ essentially from that known in India 2,000 years before, and it was not adapted to upland cotton. In 1794 Eli Whitney patented his famous saw gin and made possible the enormous crops of later years. In estimating the cotton crop it is usual to begin the cotton year with Sept. 1, the year being represented by figures that include portions of two calendar years, and the total yield is expressed in bales that may or may not be calculated to an uniform basis. Within 100 years, 1790 to 1890, the cotton production of the United States increased from about 5,000 bales to more than 10,000,000 bales of 400 pounds each.

The largest crop produced in the United States was that of 1898–9, which was 11,275,000 commercial bales, and the smallest during the past 75 years was that of 1864–5, which was estimated at about 250,000 bales. The Sea Island crop, which is almost exclusively produced in the coast region of South Carolina, Georgia,

and Florida, and on the adjacent islands, has averaged about 80,000 bales a year for the past 10 years, the crop of 1901–2 being estimated at 84,524 bales. The estimated total crop for 1902–3, according to the United States Department of Agriculture, was 10,417,000 bales of a net weight of 490.7 pounds, produced on 27,114,103 acres, or an average of 188.5 pounds of lint cotton per acre. The United States census bureau has been recently charged with the collection of statistics regarding the annual cotton production, and the estimate of that bureau for the crop of 1902–3, as shown by returns received from 32,753 ginneries, was 10,630,945 gross bales of 500 pounds each. The production of commercial bales by states was as follows: Alabama, 1,011,325; Arkansas, 999,629; Florida, 67,287; Georgia, 1,509,199; Indian Territory, 409,591; Kansas, 45; Kentucky, 1,308; Louisiana, 911,953; Mississippi, 1,451,626; Missouri, 49,552; North Carolina, 586,884; Oklahoma, 218,390; South Carolina, 948,200; Tennessee, 328,019; Texas, 2,587,299; Virginia, 16,575. Of this large production about two-thirds are exported, the mills of the United States only consuming about one-third. While a large exporter of cotton, the United States imports considerable, taking annually about 100,000 bales of Egyptian cotton, most of which is used in the manufacture of Balbriggan underwear, hosiery, silk and cotton mixtures, and wool and cotton mixtures, etc.; and about 25,000 bales of Peruvian cotton, which is used exclusively to mix with wool to cheapen the cost of underwear, hosiery, etc.

COTTON GINNING MACHINERY, machinery for preparing the raw or seed cotton for the cotton mills. Its primary object is separating the fibres of cotton from the seed. At present no successful mechanical means is in general use for harvesting or picking seed cotton from the stalks in the fields. The bolls begin to open in the latter part of July. When ripe they burst at the top and the locks of cotton streaming out are filled by the wind with sand and dust, and wet by the rains and dew. So to keep the cotton clean, picking must commence as early as possible and continue until the last of the crop is gathered. A day's work for an adult varies from 200 to 300 pounds, and of this weight about a third is lint and two thirds seed. Picking is done by contract at so much per hundred pounds, and the seed cotton is either stored in houses located in the fields or carried in wagons to the gin houses, where it is either stored temporarily or ginned at once from the wagons.

The earliest gin probably dates back to the days when the market price of animal skins became so great that man had to look around for a cheaper substitute for clothes. A primitive machine called the churka is an early gin. It is used to-day by the Hindus and Chinese. It consists of two plain rollers mounted on a

frame and revolved in contact. Between these rollers the cotton is drawn and torn from the seed.

In most parts of the cotton belt of the United States the saw gin which Eli Whitney invented in 1794 is still the machine used to gin cotton. This cotton gin is one of the few mechanical inventions which seemed to spring spontaneously from the brain of the inventor a perfect machine. Evolution has done comparatively little to change its three essential elements, the saws, ribs, and brush. These have been retained in nearly all modifications intended to meet modern ideas, methods, means, and material of construction, and improve the quality and quantity of the staple of the cotton, but thus far no machine has been invented which can excel the saw gin in capacity. As the fibres of the cotton were found to be injured by the action of the saws, the McCarthy roller gin was introduced. It consists of a leather-covered roller to which a knife is tightly held tangentially, and a moving blade that moves up and down in a plane just behind and parallel to the fixed knife. As the cotton is drawn between the rollers and the knife, the seeds are forced loose by the moving blade. The capacity of this gin is so limited that only the small part of the cotton crop which is of long fibre, like that raised on the sea islands of the Carolinas and Georgia, and some parts of the river bottom lands, is ginned on it, and its limited capacity has prevented its general introduction throughout the south.

The principal machines used in a modern cotton ginning establishment, in the order in which they are used, are the telescope, the elevator, the exhaust fan, the feeder, the gin, the seed conveyer, the flue, the condenser, and the press.

The machine which makes the separation of fibres from the seed is known as the gin; all the other machines in the gin house, except the engine and boiler, are intended to either get the seed cotton to the gins, or to take care of the seed and lint after they leave the gin.

The telescope is an extensible tube which hangs from the inlet cotton pipe; it is counterbalanced and so arranged that its tube can be pulled down and kept close to the pile of cotton as it decreases in size.

The pneumatic elevator, which is now the apparatus most generally used to distribute cotton to the gins, is arranged as follows: *A* is the cotton pipe leading from the telescope. *B* is a valve which swings away from *A* and allows the cotton to enter chute *C*. *D* is a screen which prevents the cotton getting into the air pipe, and *E* is a valve which separates the chute *C* from the air pipe *F*. *G*. is a flexible valve which prevents the air from entering the chute from below. *H* is a valve for admitting outside air. A chute is mounted over each gin feeder, all of the cotton pipes are connected to the common pipe *A* which extends to

the telescope, and all of the air pipes are joined to the common pipe *F* which connects to an exhaust fan. The valves *E* are opened in rotation. In a system using four gins each valve is open a fourth of the time and closed three-fourths. When air valve *F* in the first chute is open a vacuum is formed in the chute, the outside air carrying with it the cotton, rushes in from the telescope through valve *B*. The air is drawn through the screen into the fan, while the cotton strikes against the screen with enough force to take out a large part of dirt and dust, no cotton being ever allowed to get into the blades of the fan on account of the danger of fire which a spark might cause. As long as valve *E* remains open cotton continues to enter this chute and valve *G* remains closed, but when valve *E* in this chute is closed the corresponding valve in another is opened and the stream of cotton and air is deflected to the second chute, and the cotton in the first dropped from the screen and into the feeder below. Valve *H* is opened to allow fresh air to get in above the cotton and thus break the vacuum and blow the cotton off the screen.

The feeder which is located just below this elevator, and over the gin, has for its object the cleaning of the seed cotton, breaking up the lumps and then feeding the locks evenly and regularly into the gin. Its parts are as follows: A slowly moving apron *I* receives the cotton from the elevator and carries it to the picker wheel *J*. This wheel revolving with great rapidity picks up the locks of cotton and throws them against the screen *K*. The particles of dirt and trash go through this screen and are carried away by helical conveyer *L*. The cotton is rubbed over the screen and thrown on an inclined apron *M* which carries it into the roll boxes of the gins.

The gin used on upland cotton is practically the same in design as the one invented by Whitney.

The influence of improved machinery on handling cotton can best be illustrated by the following figures: In 1792 the exports of cotton from the United States was 138,342 pounds, scarcely more than 276 bales of 500 pounds each. Ten years after Whitney had invented the saw gin the exports amounted to 18,000,000 or 36,000 500-pound bales. Again in about 1876 the cotton crop was a little over 5,000,000 bales, then modern machinery began to be introduced, causing a saving in labor, and therefore the reduced cost of ginning acted as such a stimulus to cotton raising that at present the crop is about 11,000,000 bales. It is estimated that the introduction of the round lap bales which save the charges of compressing, and the expense of concentrating the bales, will make a net saving to the grower of almost $3 per bale, or $33,000,000 annually.

COTTON-GRASS, a genus of the sedge family (*Cyperaceæ*). About 10 species are distributed in the bogs and moist places throughout the northern hemisphere. The fruit of the cotton-grass is clothed at the base with a silky or cotton-like substance, which is employed in making paper and candle-wicking; also used for stuffing pillows. The plant was formerly used for medicinal purposes. A more recent attempt to employ the soft bristles as a substitute for cotton has naturally failed, as the fibre is less readily spun and not so durable.

COTTON INSECTS. The cotton worm and bollworm are the chief enemies of the cotton plant in the United States; in other countries different insects prey upon it. Various caterpillars and other insects attack this plant wherever it is grown. In Egypt a noctuid larva, in Greece various kinds of cut-worms, in India a small tineid bollworm (*Depressaria*), while in Australia a red-bug, allied to the cotton-strainer (*Dysdercus suturellus*) affects it. This insect, by sucking the buds, causes the bolls to blast or become diminutive, and also stains the cotton fibre by its excrement.

The cotton worm is by far the most serious pest. It is the caterpillar of a noctuid moth (*Aletia xylina*), which often feeds in vast numbers on the leaves of the cotton plant. It has a loping gait; is slightly hairy, green, dotted with black along a subdorsal yellowish line, with black dots beneath, and changes to a pale reddish-brown moth.

Another insect, destroying great numbers of cotton buds, is the bollworm, the caterpillar of another noctuid moth (*Heliothis armigera*), well-known for its injuries to tomato and tobacco plants and to corn in the ear. The adult is a tawny, yellowish moth, about an inch and three-quarters across the wings, which may be seen toward evening, in summer and autumn, hovering over the cotton blooms, and depositing a single egg in each flower; the egg is hatched in three or four days, and the worm eats its way into the center of the boll, causing its premature fall; the insect instinctively leaves the boll when it is about to fall, and enters another, and finally attacks the nearly matured bolls, rendering the cotton rotten and useless.

A fine spray of kerosene oil applied to the leaves will kill all the worms in a remarkably short time, but as petroleum in any form injures the plant, the oil must be so diluted as to injure only the worm and not affect the plant. The use of milk as a diluent has been suggested.

COTTON-MOUSE, a small field mouse (*Peromyscus gossypinus*), native to the s. portions of the United States, and destructive to cotton plants. It is dark brown in color, with grayish feet. Its habits are like

those of the white-footed deer-mouse, common in the north.

COTTON-SEED-OIL INDUSTRY.— The utilization of one waste product does more to enrich the world than an increase of many millions of dollars of product in some old and well-established industry. Perhaps there is no single thing that more forcibly illustrates this truism than the utilization of the once despised cotton seed. In the process of ginning seed cotton the result is a little more than two pounds of seed for every pound of cotton produced; and 40 years ago, aside from the small amount of seed that might be reserved for the next season's planting, and such small quantities as were consumed by the cattle on the plantation, there was absolutely no use to which it could be applied. At the gins the great seed heaps grew, as the sawdust heaps rise to-day around the portable sawmill, until, as a last resort, the gin would be moved from the base of the seed mountain it had reared up to itself. Thus was cotton seed, in 1840 and 1850, a source of actual expense and an incumbrance. That there was an oil that might be made useful contained in the cotton seed was known, of course, ever since 1783, when that august and venerable body, the London Society for the Encouragement of Arts, Manufactures, and Commerce, first called public attention to it. The real value of this oil, or a method for its extraction, was, however, not known to the society; and while it declared that the seed cake resulting from the manufacture of the oil was good cattle food, and though the society offered gold and silver medals of reward for the first successful process of making the oil and cake, it never had occasion to bestow its honors. Later on, when the seed of the Egyptian cotton was introduced into Europe, the manufacture and refining of the oil was begun and carried on quite extensively. The use of the product for food purposes was also learned abroad before any advance whatever had been made by this country in that direction.

The dilatoriness of Americans in availing themselves of this great wasted asset was undoubtedly due to the fact that the South, where cotton was king, was not a manufacturing community, and had neither taste nor inclination to develop along any but agricultural lines. Her population, further, embraced but few of the operative class needed for the labor of the manufactory. The first recorded attempts in this country to extract the crude cotton-seed oil were made at Natchez, Miss., in 1834, and at New Orleans in 1874. Both were complete failures from the standpoint of practicability, and it was long a lugubrious jest with a well-known citizen of New Orleans, who was active in the second attempt, to show a small bottle of the crude cotton-seed oil, which he stated had cost him just $12,000. Abroad the

seed of the Egyptian cotton continued to be used more or less successfully, and experiments — rather desultory in their nature, perhaps — were continued on this side of the water. The greatest difficulty encountered by the pioneers in this field was the total lack of appropriate machinery. Foremost as Americans have been in the invention of mechanical appliances, they were singularly backward in developing machinery for the expression of the cotton-seed oil. At the time now under discussion each mill that was attempted had its own mechanical ideas, and these were uniformly crude and unsuccessful. In fact, the introduction of improved or even fairly practicable methods of extracting and refining cotton-seed oil did not come until some of the American manufacturers — notably Paul Aldigé of New Orleans — had visited the great European works, including those at Marseilles, and patterned from them, in the early years after the civil war.

Prior to this, however, the industry had gained a foothold on a small scale, and crude cotton-seed oil was put on the market in limited quantities. Its appearance as a domestic product dates from about 1855, and to Paul Aldigé, of New Orleans, later one of the most prominent cotton-seed-oil manufacturers in the country. is due the credit for the first successful attempt at crushing the seed in a mill. He had to contend with many difficulties, not the least of which was procuring the cotton seed. The wealthy planters of those ante-bellum days, when their cotton crop was picked, ginned, and baled, were quite disposed to regard the business as completed. To be troubled about selling the waste seed product of the gins was not worth their while, and as the small planter did not exist to any extent, it was more than difficult to secure the needed seed. it was harder to get one ton then than it is to get 100 to-day. Furthermore, the transportation facilities for bringing in the seed from the outlying districts were of the poorest. These obstacles, together with crude machinery and little knowledge concerning the valuable by-products to be obtained from the manufacture of the oil, all operated to keep the industry at the lowest point.

Singularly enough it was in the State of Rhode Island that the first firm foothold for this peculiarly southern industry was obtained. A mill was started at Providence, R. I., in 1855–6, and the seed was shipped from the South, principally from New Orleans. While but a small affair compared with the huge works of to-day, this mill continued to be operated until the outbreak of the Civil war put an end to southern seed shipments. During the years of the war that followed, the cotton-seed-oil industry made little headway here, although abroad it was rapidly coming into prominence. There were a few small mills

and refineries in the cities along the Mississippi, notably at Vicksburg and New Orleans; and after the blockade of that river began to shut off supplies, their product came into demand as an illuminating oil, despite the fact that it could not be burned in chimney-lamps. In the accumulation of the seed-cake resulting from this blockade, which prevented all exportation, the South first came to use it, in default of anything better, as a food for cattle. It had never been used for such a purpose here before, although it had been exported, and its valuable properties were well known on the continent of Europe. The hulls, also were discovered at this time, in the same forced way, to be good food-stuff for cattle, and their use for this purpose, in a limited way in the South, dates from this time. These hulls, mixed with a certain percentage of the meal of the seed-cake, make a compact form of fodder, and were used in the timber regions and other localities where hay was hard to obtain and difficult to transport.

It is not many years ago that every cotton-seed mill in the country utilized, as far as possible, its hulls for fuel to operate the mills; but this demand fell short of the production, and the larger mills were put to an expense for hauling the hulls away or for erecting furnaces to convert them into ashes. Gradually the value of the hull became known to the dairyman, and then to the feeder of stock for the butcher, till at the present time practically all the hulls produced are utilized as cattle-food, and that which was only lately an expense to the crusher has become a source of revenue.

In 1866 there were in the whole United States just seven mills for the crushing of the cotton seed. Though the diverse usefulness of the cotton-seed-oil was manifesting itself almost daily in some new form, the growth of the industry was comparatively slow. Twenty-six mills in 1870 increased in the next 10 years to only 45. These represented a capital invested of $3,862,300, through which was turned out an annual product valued at $7,690,921. In wages the cotton-seed mills in 1880 paid out $880,836 to 3,319 employees, and the value of the material consumed by them in the processes of manufacture was $5,091,251. These figures, while of respectable amount, considered with due allowance for the short time the industry had been known, still sink into insignificance by contrast with those representing its condition to-day. The 15 years that followed 1880 have seen the most wonderful change in the status of the cotton-seed-oil business among the commercial and industrial interests of the country. While the total product of the country in 1880 was less than $8,000,000; that of a single concern, the American Cotton Oil Company, 10 years later was over

$20,000,000, and 5,000 employees were carried on the rolls of this one company.

The process of extracting the oil from the cotton seed is a rather complicated one in its preparatory stages, but is simplified to the last degree by the employment of machinery at each and every step. The seed, on reaching the mill, is first screened, to remove sand, dirt, bolls, and foreign substances, and finally a draft of air is used to complete the cleaning process. The seed is now ready for the linters, which machines are an elaboration of the ordinary cotton-gin; and whatever staple remains upon the seed is stripped off in passing through them. From the linters the seed passes to the huller, a high-speed cutting-machine, which cuts it up most thoroughly. The hulls, by screens and beaters, are now separated from the meats, which latter are, by screw-conveyers, conducted to bins contiguous to roller-crushers, and as fast as required are passed through the crushers, where the mass is reduced to a uniform consistency, and is known to millmen as "uncooked meal." The first step is cooking this meal, which is done in steam-jacketed kettles. When heated to a proper degree the meal is drawn from the kettles, formed into cakes, enveloped in camel's hair cloth, and placed in boxes of an hydraulic press, when by the application of proper pressure the crude oil is speedily extracted. The solid residue remaining in the press-box is the decorticated cotton-seed-oil cake of commerce.

In the practical methods by which these mills are supplied and operated all the improvements of modern industrial enterprise have been laid under tribute. In the distribution of the oil product, tank-cars on the railroads and tank-steamers on the high seas are used for transportation in bulk; and the American Cotton Oil Company, in its immense export business to Rotterdam, has a tank-steamship capable of carrying 4,200 tons of oil in bulk, thus saving the heavy item of cooperage. This steamer can thus carry, without injuring, even the finest quality of the food-oil, which is in great demand in Holland and Belgium. As an evidence of the amount consumed there it is shown that Rotterdam alone imported in one year, recently, no less than 8,356,676 gallons of cotton-seed-oil, of which 5,973,760 were from this country. The diversity of the industry requires factories other than the crude-oil mills, as refineries, lard and cottolene plants, soap factories, cotton-ginneries, cotton-compressors, and fertilizer-mixing establishments. The supply for all these is derived directly from the crude-oil mills, which in their turn are operated immediately from the raw material, in providing which there has grown up a most important branch of the agricultural system of the South.

COTTON.

U. S. IMPORTS AND EXPORTS, 1830-1902

Fiscal Years.	C. Manufactures.		Raw C.
	Imports.	Exports.	Exports.
1830	$7,862,326	.....	$29,674,883
1831	16,090,224	$1,126,313	25,289,492
1832	10,399,653	.....	31,724,682
1833	7,660,449	.....	36,191,105
1834	10,145,181	.....	49,448,402
1835	15,367,585	2,858,681	64,961,302
1836	17,876,087	2,255,734	71,284,925
1837	11,150,841	2,831,473	63,240,102
1838	6,599,330	3,758,755	61,556,811
1839	14,908,181	.....	61,238,982
1840	6,504,484	3,549,604	63,870,307
1841	11,757,036	3,122,546	54,330,341
1842	9,578,515	2,970,690	47,593,464
1843	2,958,796	3,223,550	49,119,806
1844	13,236,830	2,898,780	54,063,501
1845	13,360,729	4,327,928	51,739,643
1846	12,857,422	3,545,481	42,767,341
1847	14,704,186	4,082,533	53,415,848
1848	17,205,417	5,718,205	61,998,294
1849	15,183,759	4,923,129	66,396,967
1850	19,681,612	4,734,424	71,894,616
1851	21,486,502	7,241,205	112,315,317
1852	18,716,741	7,672,151	87,965,732
1853	26,412,243	8,768,894	109,456,404
1854	32,477,106	5,535,516	93,596,220
1855	15,742,923	5,857,181	88,143,844
1856	24,337,504	6,967,309	128,382,351
1857	28,114,924	6,115,177	131,575,859
1858	17,574,142	5,651,504	131,386,661
1859	26,026,140	8,316,222	161,434,923
1860	9,079,676	10,934,796	191,806,555
1861	24,722,079	8,059,549	34,051,483
1862	8,904,051	2,946,464	1,180,113
1863	14,121,589	2,906,411	6,652,405
1864	14,341,501	1,246,216	9,895,854
1865	7,324,438	3,323,637	6,836,400
1866	27,652,413	1,780,165	281,385,223
1867	23,872,474	4,608,235	201,470,423
1868	16,668,382	4,871,054	152,820,733
1869	19,088,783	5,874,222	162,633,052
1870	21,900,898	3,787,282	227,027,624
1871	26,587,995	3,558,136	218,327,109
1872	29,983,671	2,304,330	180,684,595
1873	31,810,680	2,947,528	227,243,069
1874	24,922,254	3,095,840	211,223,580
1875	24,199,793	4,071,822	190,638,625
1876	19,850,107	7,722,978	192,659,262
1877	16,456,296	10,235,843	171,118,508
1878	19,398,791	11,435,628	179,031,484
1879	19,928,310	10,853,950	162,304,250
1880	29,929,366	9,981,418	211,535,905
1881	31,219,329	13,571,387	247,695,746
1882	34,351,292	13,212,979	199,812,644
1883	36,853,689	12,951,145	247,328,721
1884	30,454,476	11,885,211	197,015,204
1885	28,152,001	11,836,591	201,962,458
1886	30,381,774	13,959,934	205,086,742
1887	29,474,281	15,090,060	206,310,995
1888	28,917,799	13,013,189	223,016,760
1889	26,805,942	10,212,644	237,775,270
1890	29,918,055	9,999,277	250,968,792
1891	29,712,624	13,604,857	290,712,898
1892	28,323,841	13,226,277	258,461,241
1893	33,560,293	11,809,355	188,771,445
1894	22,346,547	14,340,886	210,869,289
1895	23,196,625	13,789,810	204,900,990
1902	48,954,284	33,274,907	290,491,225

As collections are now made, everything has been systematized to a point that insures the greatest possible expedition of business. In the small inland towns the seed is brought in entirely by wagons, drawn by the inevitable southern mule; and every Saturday morning during cotton-picking time a long string of these wagons can be seen waiting in the sun outside the seed depot to be weighed and unloaded. All is grist that comes to a cotton-seed buyer nowadays; that is, until he begins to grind. Foreign substances and poor-quality seed mix with the wagon load, and are shoveled in to him at the same market price as the good product. He has no time to object, as the early cotton-seed grinder would most certainly have done. He now knows the machinery in the mill will sort all that mass of seed as intelligently as he himself could do it, and with infinitely more rapidity. He knows that he and his colleagues are now buying from 1,250,000 to 1,500,000 tons per year, where a few thousands only were bought 25 years ago, and if the expediting of this vast business involves some increased expense, it must be borne. This buying in bulk is also practiced where the seed is transported by rail to the mills. Immense tracts are laid under contribution in this way, and remote districts reached by the mills in their ever-extending hunt for the seed. Much of the product brought in by the railroads is transported for several hundred miles, and statistics place the average expense to the mills of this single transportation item at $2 per ton, which, supposing that only one-half the total seed-supply was carried over the railroads would run into large figures.

The third and most favored method of collecting the cotton-seed is by boat along the rivers. In this form of collection it is found necessary to sack the seed, and for this purpose the mills supply the bags. A steamboat carrying several thousands of empty bags will leave New Orleans or Vicksburg, as the case may be, and steaming slowly up the river, stop at each small town and at the various plantations along the levees. At each stopping place as many bags are left as each planter thinks he can fill; and when the last bag has been given out, the steamboat is turned and headed down the river to pick up the freight by the dozen or by the hundred bags as it returns. The great drawback to this system is that the bag used for cotton seed is altogether too popular an article among the planters. The planters to-day are small holders, and for the most part negroes, to whom a cotton bag has a varied utility that would scarcely be believed at first sight. It makes an excellent pair of trousers or a coat for plantation work, a good saddle-cloth for the road, and can even be found as bedding in not a few of the houses along the levees. That the loss entailed in this

seemingly petty way is really a heavy one may be gathered from the fact that the mills have had a shortgage of as many as 1,500,000 bags in a single season.

The effect upon the cotton-growing interests of the South of the great industry that has sprung up from this seed has been undoubtedly great. In the face of a declining market the total production of the plantations has more than tripled during the past 32 years. A crop of 3,154,946 bales in 1870 had increased to a total production of 10,979,805 bales in 1902. Cotton-seed-oil solely, has not been, of course, responsible for this advance, nor is such a claim advanced. It can be stated, however, that since the small planter, with his 5- to 10-bale crop, became common throughout the cotton belt, the additional revenue which he has been able to derive from the sale of the cotton seed has done much to aid his progress.

The quality of the cotton affects little or not at all the quality of the seed, and soil so poor as to yield a hardly marketable cotton will still grow a plant whose seeds are as good as the best. In the making of the cotton-seed-oil there has already been utilized a large amount of the seed of the almost worthless "bumblebee" cotton. This cotton is stunted, either from poor soil or lack of cultivation, and grows so near the ground that only the very smallest negro children, known as 'bumblebees,' are able to pick it without becoming exhausted by stooping. Finally, when it is considered that the seed of the cotton-plant more than pays the entire expense of ginning, baling, and tying the crop, the economy it effects is plainly seen.

The prejudice against cotton-seed-oil—so rampant in the early eighties as to induce Spain at that time to begin a war against its importation, in which Italy, moved to the defense of her olives, speedily joined—has largely disappeared. Since 1889 the exportation of cotton-seed cake and meal has become an important item of our foreign trade, and one which bids fair largely to increase. The amount exported in 1902 was 735,757 tons, about four times the amount exported in 1892. Likewise the exports of cotton-seed-oil in 1901 were 49,356,741 gallons against 11,003,160 gallons in 1891. The value in 1901 of this export was $16,541,321 against less than $4,000,000 exported in 1891.

In the year 1900, with a cotton crop of nearly 10,000,000 bales, there were about 2,500,000 tons of seed crushed. This means that at least $25,000,000 were distributed among the planters of the South in cash payments for cotton seed; the railroad and transportation companies received as much more in freights. From this resulted a product approximating 93,000,000 gallons of crude cotton-seed-oil, besides about 900,000 tons of oil-cake and meal.

COTTON STATE, a nickname for Alabama.

COTTON SUPPLY OF THE WORLD. Of the cotton now consumed by the mills of Great Britain, continental Europe and the U. S., about 80 per cent. is the growth of this country. In the five years ending 31 Aug. 1860, the average proportion was 84½ per cent. The high prices resulting from our civil war and the disorganization of the agricultural interests of the South, which continued for some years thereafter, induced such an increase of cultivation in other countries that it was not until 1882 we furnished as much as 75 per cent. of the total consumption of the mills of Europe and the U. S. For the five years ending with 1890 we furnished within a fraction of 77 per cent.; in the five years ending with 1895 we had increased our proportion to 79½ per cent., and for the five years ending with 1900 we had furnished to the mills of Europe and America 83⅓ per cent. of their entire takings of cotton.

We have now regained our absolute supremacy in the field of cotton production, and an impartial consideration of the entire situation fully justifies the belief that we will retain it indefinitely. Our chief competitors in cotton production for the European markets are India and Egypt. In the year ending 30 Sept. 1902 the deliveries of cotton to the spinners of Great Britain and continental Europe were 8,292,000 bales, consisting of 6,464,000 bales of American, 759,000 of East Indian, 772,000 of Egyptian, and 357,000 from Brazil, Peru, Turkey, and all other countries. Taking into consideration the weight of the bales of each country, the proportion of each growth was about as follows: American, 77 per cent.; Egyptian, 14 per cent.; East Indian, 7 per cent., and the total of all other kinds, 2 per cent.

The consumption of cotton by the mills of India has increased from 34 per cent. of the crop in 1882 to 59 per cent. of the crop of 1898, the latter being the largest crop recorded. The crop of India in 1881 was 2,390,000 bales, of which 814,000 bales were consumed in the country. In 1898 the crop had increased to 3,502,000 bales, and the home consumption to 2,088,000 bales. While the production had increased during this period 1,112,000 bales, or 46½ per cent., the home consumption had increased 1,274,000 bales, or 156½ per cent. The exports of cotton from India had decreased, however, from 1,576,000 bales in 1881 to 1,414,000 in 1898. The largest annual exports of cotton ever made from India were 2,023,000 bales in the season of 1871–2. During the season of 1901–2 the total exports were 1,618,000 bales, including 860,000 to Japan and China, while in the season of 1899–1900 the entire exports were only 303,000 bales to Europe and 607,000 to Japan and China. Of the total deliveries of cotton

to European spinners during the five years ending in 1865, India furnished an average of 45 per cent. During the five years ending in 1875 India's proportion of the deliveries to Europe had fallen to 26 per cent. In the five years ending with 1885 it had fallen to 20 per cent., and in the five years ending in 1895 to 13 per cent. In the five years ending with 1900 the proportion had dropped to 7½ per cent.

There is in India an abundance of suitable land which could be added to the area now devoted to cotton, and while some extension of cotton cultivation may be expected, it seems quite evident that the increased production will be fully absorbed by the growing requirements of the Indian cotton-mills. The general uncertainty in regard to the rainfall and its actual insufficiency in many sections of India are serious drawbacks to any considerable increase in cotton cultivation, especially when it is considered that the average yield per acre is only about 75 pounds of lint cotton of a quality and market value much lower than American cotton.

In China cotton is grown in a small way by a great many people who grow other crops as well, but it is rarely, if ever, made an exclusive crop, and no statistics are obtainable of the quantity actually grown. With the exception of a small quantity exported to Japan, it is all consumed in China, none having been exported to Europe since 1867. The production of China and Korea is estimated as equal to about 1,300,000 bales of 500 pounds net. The quality of Chinese cotton is undesirable, the staple being coarse and harsh, and quite short.

The formal opening, 9 Dec. 1902, of the newly constructed irrigation works at Assouan and Assiout on the Nile has attracted attention to Egypt as a source from which increased supplies of cotton might be expected. Egypt is an almost rainless country, the average yearly rainfall at Alexandria for the last 30 years being only about eight inches. No crops of any kind can be grown without irrigation, and the river Nile is the only source of water supply. The cultivable soil of Egypt consists only of the land which can be reached by the water of the Nile. Beyond this limit there is only a barren waste of sand and desert utterly impossible of cultivation. The cultivable portion of Egypt is embraced in the delta of the Nile and the valley of the Nile, comprising together about 6,000,000 acres. The Nile delta is a triangular-shaped section of land, having its apex at the old irrigation works near Cairo, and its base on the Mediterranean, between the Rosetta and Damietta branches of the Nile. The valley of the Nile runs along the river from Cairo southward, and is quite narrow, ranging from five to nine miles in width—a mere strip of green verdure in a desert of sand. From the conditions existing in Egypt a 'low

Nile,' therefor, has always meant small crops, and a failure of the annual flood a failure of the crops. The chief purpose of the new irrigation works was undoubtedly to safeguard the crops of the land already under cultivation. (See ASSOUAN.) There will be some extension of acreage, but this will be chiefly in upper Egypt, where the cotton is much inferior to that of lower Egypt, and brings a considerably lower price. The best opinion is that the increase in acreage will be gradual, as it will depend upon the construction of canals to take the water to the new fields.

As much has been written recently respecting the increase in cotton cultivation in Egypt, a comparison of the Egyptian crops with those of the U. S. discloses some facts of interest. As practically the entire cotton production of Egypt is exported, it is usual to take the total exports as representing the commercial crop of each season, and therefore, each season's exports from Egypt will be compared with the commercial crop of the U. S. for that season. In the season of 1873–4 the U. S. crop was 4,130,000 bales, and the last crop (1901–2) was 10,768,000 bales, showing an increase of 6,638,000 bales, or equal to 160 per cent. The Egyptian crop, 1873–4 was 410,000 bales, and that of 1901–2 was 859,000 bales, showing an increase of 449,000 bales, or 110 per cent. In the season of 1897–8 the U. S. crop had grown to 11,216,000 bales, being an increase of 7,086,000 bales over the crop of 1873–4, while the Egyptian crop had increased to 843,000 bales, being 433,000 bales in excess of the crop of 1873–4. During the entire period under review the largest commercial crop of the U. S. was that of 1898–9, which exceeded the crop of 1897–8 by a few thousand bales, while the largest Egyptian crop was that of 1901–2. The percentages of increase in Egypt look very large and compare favorably with the U. S., but in actual results the progress of cotton cultivation in Egpyt is a mere bagatelle compared with the enormous increase in actual production in our country. Percentages are very misleading. The increase in production in America since 1873 has been 7,000,000 bales, while the increase in Egypt during the same period has been only 433,000 bales. It is the actual cotton alone which can keep the spindles of the world at work, and the matter of increased percentages of production in any country is merely an academic question of no practical importance whatever.

The equivalent of about 200,000 bales of 500 pounds is now grown in Brazil, but the greatest part of it is consumed in Brazilian cotton-mills, the annual export being sometimes only about 50,000 bales. While there is a vast quantity of land in Brazil suitable for cotton, and the yield is good, the rainfall is too great near the coast, while in the interior it is uncertain, and in many sections entirely insufficient. The conditions

are, therefore, not favorable for an extension of cotton culture in Brazil beyond the increasing requirements of its cotton-mills, and especially as there are other crops better adapted to the country and doubtless more profitable.

In Mexico and Japan cotton is grown to a limited extent, but the entire production is consumed in these countries. Peru, Greece, Turkey, and Persia each grow a limited quantity of cotton, but their combined contribution to the European supply is so small as to be scarcely worthy of consideration. There is no probability of increased production in either of these countries.

Since 1889 very energetic efforts have been made to increase the cultivation of cotton in the Asiatic provinces of Russia, and the government has aided the movement by the construction of irrigation works and the imposition of a higher duty on cotton imported into the empire. From a production in Turkestan, etc., equivalent to about 100,000 bales of 500 pounds net in 1889, a total of 344,000 was reached in 1897 and 414,000 in 1899, that being the largest crop grown. In 1898 the crop was 255,000 bales, being the same as in 1892, while the crop of 1901 was 354,000 bales. This cotton is all consumed in Russia, and takes the place of that much cotton which would otherwise have been imported from America, India, and Egypt. The Turkestan cotton is nearly all grown from American seed, and the description is generally of excellent staple and quality. As the season for maturing and picking is rainless, the cotton is usually bright, clean, and of good color. The cotton grown from native seed is quite similar to India cotton, the staple being harsh, uneven, and brittle, and only about five-eighths to three-quarters of an inch long. There is rarely any rain from 10 Apr. to 1 Nov., and the needed moisture for the crops is supplied from the rivers by means of irrigating canals. Labor is in ample supply, and cheap. Except along the watercourses, the land in Turkestan is for the most part composed of mountain ridges or sandy plains, and in consequence of the insufficiency of rainfall during the season of growth, cotton cannot be produced anywhere without the aid of irrigation. If all the cultivable strips of land in the Asiatic provinces of Russia could be placed together they would about equal the area of North Carolina, but of necessity by far the greater part of this territory must be devoted to food crops. From the facts presented, it looks as if the limit of cotton production had been reached in Turkestan until more extensive irrigation works are constructed by the Russian government. Even then, in view of the limited area of suitable land, it is doubtful if the production of cotton in Russia's Asiatic provinces will ever be sufficient to fully meet the requirements of the Russian mills.

COT'TON, Gun: see Gun Cotton.

COTTON, *kŏt'n*, John: 1585, Dec. 4—1652, Dec. 23; b. Derby, England: patriarch of New England. He was educated in Trinity College, Cambridge; obtained a fellowship in Emmanuel College and became tutor, lecturer, and dean there; was appointed vicar of St. Botolph's church, Boston, Lincolnshire, 1612; and, excepting a brief suspension for refusing to observe some ceremonies of the established church which he believed unscriptural, preached there with great effectiveness till 1632. Then specific charges were preferred against him, and he was cited to appear and answer before Abp. Lared. He declined to obey, fled to London, and thence emigrated to the United States, landing at Boston, 1633, Sept. 4. In the following month he was ordained teacher of the First Church in Boston (organized 1630) and colleague of the Rev. John Wilson, the pastor, and retained his connection with the church till his death. He was eloquent and forcible in the pulpit, an accomplished Greek, Latin, and Hebrew scholar, a strict Sabbatarian, and author of nearly 50 published works, including the noted *The Keys of the Kingdom of Heaven* (1644), and *Milk for Babes* (1646).

COT'TON, Sir Robert Bruce: 1570, Jan. 22—1631, May 6; b. Denton, Huntingdonshire, England: distinguished English antiquary, founder of the Cottonian Library now in the British Museum. He was educated at Cambridge, and soon after taking his degree B.A. in his 16th year, he commenced those archeological pursuits which have made his name famous, and proved of such immense value to British historians. The dissolution of the monasteries about half a century before, dispersed many valuable collections of manuscripts into private hands, and C. hunted up and purchased these wherever praticable. On account of his eminent abilities and great knowledge, he was frequently consulted by ministers of state on difficult constitutional points and international questions. In 1600, at the request of Queen Elizabeth, who desired to have the views of the Soc. of Antiquries on the matter, he wrote *A Brief Abstract of the Question of Precedency between England and Spain.* King James, by whom he was made a knight, employed C. to vindicate the conduct of his mother, Mary Queen of Scots, also to examine whether the Rom. Catholics, on account of whom some alarm was then felt in the nation, should be imprisoned or put to death. C. took the most humane view of the matter. His intimacy with the Earl of Somerset led him to be suspected of complicity in the death of Sir Thomas Overbury, and in consequence he was imprisoned for about five months. In 1629, a tract entitled *A Project how a Prince may make himself an Absolute Tyrant*, was obtained from his library, the tendency of which was considered dangerous to the liberty of the state. His library was accordingly declared unfit for public inspection, and he himself was denied all use of it. His heart being bound up in his library, he pined and died in less than two years afterward.

The COTTONIAN LIBRARY, which now forms so important a part of the British Museum, was, after the death of Sir Robert Cotton's son and grandson, who augmented it considerably, invested in trustees for the use of the public. In 1730, the library was removed to Ashburnham House, Westminster, where the royal collection was; and in the following year a fire occurred in the house, in which about 114 out of the 958 MS. volumes of which the library consisted were reported 'lost, burned, or entirely spoiled; and 98 damaged so as to be defective.' Fortunately, however, under the care and intelligence of skilful keepers, a great number of these injured volumes have been restored, so that the library now consists of nearly 900 vols., of which, says Mr. Edwards in his *Memoirs of Libraries*, 'nearly 200 are state papers of the highest value. They include a vast series relating to the diplomatic intercourse between England and almost every state of Europe, extending from the reign of Edward III. to that of James I.; and of these documents, no small proportion consists of the original letters of sovereigns and of statesmen. Even those papers not original have high authority, as being, for the most part, coeval transcripts.' The Cottonian Library was transferred to the British Museum (q.v.) 1757. In addition to the MSS., the Cottonian collection comprises many valuable coins and antiquities.

COTTON FAMINE: decrease of the cotton-supply in Great Britain in 1861 and following years, occasioned by the war of secession in the United States; with its results in manufactures and trade. The years 1859 and '60, unparalleled for the magnitude of the cotton manufacture, had much to do with the collapse that followed. In the English industry the imports of raw cotton, the exports of manufactured cotton, the number of mills, the number of hands, all were at their maximum in 1860. The fact that of 1,390,000,000 lbs. of cotton imported, no less a weight than 1,120,000,000 came from the United States, shows the tremendous effect to be expected from any stoppage in the American cotton-trade. Irrespective of this, however, there would have been a stagnation in British manufacturing districts in 1861, even if raw cotton had been plentiful and cheap. The manufacturers had glutted all the markets by the wholly unprecedented extent of their operations in 1860.

Fort Sumter was bombarded 1861, April. This was virtually the beginning of the war of secession and of the rise in the price of cotton. A blockade was early established by the Federal government of Washington; and it was only by 'running' this blockade that cotton-laden ships could clear from the Southern or Confederate ports. The price of cotton rose from 7¾d. to 9d., 10d., and 12d. as the year advanced.

The Liverpool dealers made colossal fortunes by the enormous rise in price of every bale of cotton which could reach the country from any quarter; while the manufacturers were also prosperous, because they could sell their

accumulated stocks of calicos and yarns at much higher prices than had been obtainable in 1860. It was the operatives who suffered. One by one, the mills were put upon half-time, because the mill owners under such circumstances had not much inducement to spin and weave.

The year 1862 opened very gloomily. Relief committees began to be formed in Manchester, Wigan, Blackburn, Preston, and other towns, to distribute subscribed funds to such of the hands as were totally out of work, and other charitable enterprises, such as sewing-classes for the girls and soup-kitchens were established. A special bill was passed by Parliament providing for an increase of the parochial poor-relief funds for the benefit of the mill operatives. The working-people, however, were reduced to great distress. No date can be named for the actual cessation of the distress; it died out by degrees. In 1863 three relief vessels with food and clothing were sent to Liverpool from the U. S.

Manufacturing once more began, when the old stocks was sold off; for, although the price of raw cotton was high, the price of calicoes and muslins was proportionately high, and the mill owners could manufacture at a profit. The government also expended £1,200,000 on public works in the cotton districts, thus improving the drainage and water supply, and also furnishing employment to many.

COTTON GRASS (*Eriophorum*): genus of plants of the nat. ord. *Cyperaceæ*, having the fruit accompanied with long silky hairs which spring from the base of the ovary. The species are not very numerous; they are natives of the colder regions of the n. hemisphere, and their white cottony fruit-bearing spikes are seen in moors and bogs. The cottony substance has been used for stuffing pillows, making candle-wicks, etc. Mr. Helliwell has shown that a firm and beautiful cloth can be made of it; and, according to him, it might be gathered in some places, without cultivation, at a cost of twopence or threepence per pound. The stems of a Himalayan species, *E. cannabinum*, called *Bhabhur*, yield a very strong fibre, and are much employed for making cordage, being simply twisted into cables, of which rope-bridges are usually made; but they are not durable, and require much repairing every year.—Cotton Grass is said to be valuable for sheep pasture. Its leaves were formerly employed as a remedy for diarrhœa, and the spongy pith of the stem to expel tapeworms.

COTTON SEED: seed of plants of the order *Gossypium*. Long before the invention of the cotton-gin by Eli Whitney, 1794, the utilization of cotton seed was attempted; but the business did not prove profitable, and the seeds continued to be a waste product. There were in the United States (1870) 26 cotton-seed mills, increased (1880) to 47; and (1884) to 130. The number has not increased since. But these 130 mills have not capacity for crushing more than one-third of the seed

produced annually—upward of 2,500,000 tons of available product, making allowance for seed necessary for planting. Manufactured into oil, oil-cake, and other products, and the hulls utilized, these 2½ million tons would represent a value of not less than $75,000,000. The seeds yield 12 to 18 per cent. of crude oil, of reddish-brown color, and of average specific gravity, at temp. 54° F., 0.931. The dark color is due to the presence of resino-fatty substances. The process of refining reduces the volume 15 to 25 per cent., leaving a clear, limpid oil, light yellow in color, odorless, with taste resembling that of finest olive-oil, and which solidifies at 32° to 38° F. The crude oil is used to some extent, with the addition of other fats, in manufacture of soaps and in production of glycerin. But the principal use of the refined product is as a table-oil, taking the place of, or mixed with, olive-oil; also as a substitute for hogs' lard. It is very difficult to detect any difference of taste between cotton-seed oil and olive-oil, and undoubtedly the former is not inferior as an article of food. Cotton-seed oil is on many accounts much preferable to lard for cooking-purposes: it is wholesomer and more nutritious, is entirely free from unpleasant odor or taste, costs less, and goes further in cooking.

But the oil is only one of the useful products developed out of the cotton-seed. In the cotton-growing districts, the cake which remains after oil has been expressed is used both as feed for cattle and as fertilizer for corn, sugar-cane, and cotton, and for these purposes is highly prized.

In the U. S. 45 mills were in operation in 1880, and these increased to 60 in two years. Since then the increase has been steady, both in the number of mills and in the capacity of those already in operation. In 1890 there were 119 establishments, and this number exactly tripled in the decade following. The average consumption of seed per establishment for the year ending 31 May 1900 was 6,945 tons. The prejudice against cotton-seed oil—so rampant in the early eighties as to induce Spain at that time to begin a war against its importation, in which Italy, moved to the defense of her olives, speedily joined—has largely disappeared. Since 1889 the exportation of cotton-seed cake and meal has become an important item of our foreign trade, and one which bids fair largely to increase. The amount exported in 1902 was 735,757 tons, about four times the amount exported in 1892. Likewise the exports of cotton-seed oil in 1901 were 49,356,741 gallons against 11,003,160 gallons in 1891. The value in 1901 of this export was $16,541,321 against less than $4,000,000 exported in 1891.

COTTON-WORM: caterpillar of the tribe of *noctua* moth, genus *heliothes*. There are two kinds, each with 16 legs. The first, of a general green color striped with yellow and dotted on the back with black, has a rapid undulating motion, attains a length of 1½ inches, deposits 10-15 eggs on the under surface of the leaves, and dies soon

afterward. The eggs are hatched in 6–15 days, and the young begin to eat the leaves almost immediately. The second is of a general yellow color, though sometimes brown or green, with black spots and short hairs, has a slow, even motion, is capable of laying 500 eggs, has three broods a year, and deposits its eggs singly in each flower, whence the worm eats its way into the boll and feeds till the boll is about to fall, then goes to another. Both varieties are believed to have originated in S. America.

COTTUS, *kŏt′tŭs:* genus of acanthopterygious fishes, of the *Mailed Cheek* family or *Sclerogenidæ*, having a large depressed head, more or less armed with spines or tubercles, a tapering body destitute of scales, and two dorsal fins. Some of the species are marine, others inhabit fresh-water. Of the latter, the bull-head (q.v.) is an example. The marine species are found mostly in northern seas. The Sea Scorpion (*C. Scorpius*) and the Father Lasher (*C. Bubalis*), are often left by the receding tide in rock-pools and among sea-weeds. The greatest size to which they attain on the British coasts is only about 10 inches, but in more northerly seas, they become much larger. They form a principal part of the food of the Greenlanders. Nothwithstanding their large gill-openings, they live long out of water.

COTULA, n. *kŏt′ū-la:* genus of composite plants, type of the tribe *Cotuleæ*, tribe *Senecionideæ*.

CO-TUTOR, n. a joint tutor or guardian.

COTYLA, n. *kŏt′ĭ-lă*, or Cot′yle [Gr. *kotŭlē*, a cup or socket]: in *anat.*, the socket or hollow that receives the end of another bone. Cot′yloid, a *-loyd* [Gr. *eidos*, shape]: resembling the socket of a joint.

COTYLEDON, n. *kŏt′ĭ-lē′dŏn* [Gr. *kotulēdon*, a cup-like hollow—from *kotulē*, a hollow, a small cup]: in *bot.*, a seed-lobe, or seed-leaf; a principal part of the embryo in phanerogamous or flowering-plants. Cryptogamous plants are *acotyledonous* (q.v.): their seeds or *spores* have no cotyledons. Phanerogamous plants are divided according to their seeds into *monocotyledonous* (q.v.), having only one cotyledon, and *dicotyledonous* (q.v.), having two cotyledons. With the latter are ranked some *Coniferæ* remarkable for having more than two cotyledons, which form a sort of whorl. The cotyledons enclose the *plumule* or *gemmule;* and in germination they usually come above ground as the first leaves (seed-leaves) of the young plant —the plumule, in dicotyledonous plants, appearing between them—and they become at the same time more leaf-like; but in some plants, which have thick fleshy cotyledons, they remain underground. In either case, they contain a store of nourishment, by which the young plant is sustained on its first germination. Instances of cotyledons remaining underground, may be seen in the common pea and bean; and instances of cotyledons coming above ground, in the kidney-bean and scarlet runner, plants of the same nat. order. Cotyledons are sometimes very

thick, sometimes very thin and delicate; those of the same seed are generally equal, but not always; they are frequently undivided, but sometimes cut and lobed. The cotyledons of dicotyledonous plants are often simply applied face to face; when, if the radicle is folded along their edges, they are said to be *accumbent;* if it is folded on their back, they are *incumbent.* Sometimes the two cotyledons of a seed are *conduplicate,* or laterally folded; sometimes they are *reclinate,* or folded from apex to base; sometimes *convolute,* or laterally rolled up; sometimes *circinate,* or spirally rolled up with the apex innermost. These terms are of importance in descriptive botany, as characters of high value often furnished by the seed. Cotyledon, in *anatomy,* is applied to the portions of which the placentæ of some animals are formed, as in the ruminants: COT'YLEDONOUS, a. *-lē'dŏ-nŭs,* pertaining to; having a seed-lobe.

COUCH, n. *kowch* [F. *coucher,* to lay down—from OF. *colcher,* or It. *colcare,* to lay down—from L. *collŏcārĕ,* to lay or place down—from L. *con, lŏcārĕ,* to lay]: a place for rest or sleep; a bed; a sofa; in making malt, a layer or stratum of barley spread on the malt-floor; a layer or stratum of color, size, etc.: V. to lie down, as on a bed or place of repose; to lay down in a bed or stratum; to conceal or express in words obscurely; to include or comprise; to recline on the knees, as a beast; to crouch; to fix a spear in the posture for attack; to depress or remove the film that overspreads the pupil of the eye, called a cataract (q.v.); in *OE.,* to plate or lay over, as scales. COUCH'ING, imp. COUCHED, pp. *kowcht.* COUCH'ER, n. one who couches cataracts. COUCH'LESS, a. COUCHANT, a. *kowch'ănt* [F.]: in *heraldry,* a beast lying down with the head raised up; squatting: if the head also is down the beast is *dormant.*

COUCH, DARIUS NASH, American soldier: b. South East, Putnam County, N. Y., 1822, July 23; d. Norwalk, Conn., 1897, Feb. 12. He graduated at West Point 1846, served in the Mexican and Seminole wars, and resigned from the army in 1855 to engage in business. During the Civil War he was commissioned brigadier-general 1861; commanded a division in the battles of Williamsburg, Fair Oaks, and Malvern Hill; promoted major-general 1862, July, and took part in Pope's retreat and the battle of Antietam. At Fredericksburg and Chancellorsville he commanded the Second Army Corps; organized the Pennsylvania militia to resist Lee's invasion 1863, and took part in the battle of Nashville and the North Carolina operations 1864–5. In 1865 he was unsuccessful as the Democratic candidate for governor of Massachusetts; and was collector of the port of Boston 1866–7. He removed to Connecticut soon after, and was adjutant-general of that State 1873–4.

COUCH GRASS (*Triticum repens*), called also *Wheat Grass, Dog Grass, Quickens,* and *Squitch* or *Quitch;* a grass which, though of the same genus with wheat, is known chiefly as a troublesome weed. It is common in most

parts of Europe and N. America. It grows to a height of 1½–3 ft., and has two-rowed spikes and flat spikelets, the side of which is applied to the rachis. It is perennial, and its creeping roots render it extremely difficult of extirpation; they are carefully gathered out of land under cultivation, but they make the plant very useful in fixing loose sandy soils, so as to form pasture. It is not, however, esteemed a very nutritious grass. The roots are sweet and mucilaginous, and are collected at Naples for feeding horses; they have also been dried and ground into meal, to make bread in times of scarcity. A kind of beer is made from them, and in some countries they are much used in domestic medicine. They are diaphoretic and aperient.—The popular name, *Squitch*, or *Quitch*, is given also to some other perennial grasses.

COUCY, *kô-sé*, Renaud, Castellan of, court-poet, belonging to the north of France: probably in the latter part of the 12th c. The love-songs ascribed to him are distinguished above all similar productions of the same epoch by great warmth of passion. They are addressed, of course, to a mistress, whose name, in accordance with the fashion of the time, is not mentioned. From their contents, we can gather little or nothing of the circumstances of Coucy's life, except that he had become a crusader, and had separated himself very reluctantly from the object of his adoration. It is supposed that he accompanied Philippe Auguste and Richard Cœur de Lion to the Holy Land, probably in the service of Raoul, Sieur de Coucy, with whom, indeed, he is often confounded. Like Tristan and Isolde, Coucy and his mistress soon became patterns of true but unfortunate lovers. As early as the first half of the 13th c., the *Roman d'Aventure* gives a very prolix and incredible account of both. The best edition of the *Chansons du Châtelain de Coucy* was by Franc. Michel (Paris 1830).

COUDERT, *kô-dĕr*, Amalia Küssner: American artist; b. Terre Haute, Ind. 1873, March 26; married Charles Du Pont Coudert 1900, July 3. She is one of the most distinguished of living miniature painters, beginning her artistic career in New York in 1892. She went to London in 1896 and painted King Edward (then Prince of Wales), and many leading members of the nobility; in 1899 received a summons to Russia to paint portraits of the emperor and empress; and the same year went to South Africa to paint a portrait of Cecil Rhodes.

COUDERT, Frederic René, American lawyer: b. New York, 1832; d. Washington, D. C., 1903, Dec. 20. He was graduated at Columbia College in 1850, and admitted to the New York bar in 1853. In 1892 he was appointed one of the counsel on the part of the United States before the Bering Sea Tribunal of Arbitration in Paris; 1896, on 1 Jan. President Cleveland appointed him a member of the Venezuela Boundary Commission. He had a world-wide reputation as an advocate and authority

on international law, and several times declined appointment to the bench of the United States supreme Court. He was the legal representative of the French government in the United States for many years.

COUEPIA, n. *kô-ĕp′ĭ-a:* genus of plants, ord. *Chrysobalanaceæ.* The wood of *C. guianensis*, a large tree 60 ft. high is durable and heavy. The Indians use its bark in the manufacture of their pottery.

COUES, *kowz*, Elliott, American naturalist: b. Portsmouth, N. H. 1842, Sept. 9; d. Baltimore 1899, Dec. 26. In 1861 he graduated from Columbian University, Washington, D. C., and the year following entered the United States army as a medical cadet. For some years he continued to practice surgery or teach its science; but he also continued to pursue the study of zoology, begun while in the university. In 1873 he was appointed surgeon and naturalist for the United States commission which defined the northern boundary. For three years he remained connected with this commission, and in addition gave some assistance to the Smithsonian Institution. In 1877 he was called by the Columbian University to take charge of a department of anatomy, and later was appointed by the Virginia Agricultural and Mechanical College as professor of biology. He was associate editor of *The American Naturalist* and other periodicals; and one of the editors of the Century Dictionary. He was one of the founders of the American Ornithologists' Union. His last years were given chiefly to the Smithsonian Institution. He has left a large number of valuable works on mammalogy and ornithology, some of which are: *Key to North American Birds* (1872); *Fur Bearing Animals* (1877); *Our Native Birds.*

COUGAR, n. *kô′gâr* [S. Amer. word: F. *couguar*]: the American panther: see Puma.

COUGH, v. *kof* [an imitative word: Dut. *kucu*, a cough; *kuchen*, to breathe with difficulty]: to expel the air from the lungs with considerable force and noise; to expectorate: N. an effort of the lungs to throw off offending matter, as phlegm from the air-passages, accompanied with considerable noise: Cough′ing, imp.: Coughed, pp., *koft.* A cough is a symptom of a number of diseases of the respiratory organs. It is produced by a sudden opening of the larynx giving exit to a volume of air under pressure. A deep breath is taken, filling the lungs with air, the larynx is then closed and the imprisoned air compressed by the action of the expiratory muscles; when a certain tension is reached the vocal cords relax and the air escapes explosively carrying with it mucus or other irritating matter. Cough is excited by irritation of the pneumoyestic nerve, and as this nerve sends branches to other organs than the lungs and bronchi, cough may be occasioned reflexly by irritation of these branches as well as of those distributed to the bronchial tubes; this is what is called a 'sympathetic' cough. We find therefore that cough may be excited by

disturbances of the internal ear, of the stomach, of the fauces and back of the tongue, and of the larynx, bronchial tubes, and lungs; by irritation of the skin of the thorax and neck; by the pressure of an aneurysm of the aorta, enlarged glands, or other tumors in the chest; and it may also be of purely nervous origin independent of any actual physical cause. When cough is occasioned by an increased secretion in the respiratory passages it serves a useful purpose and should not be checked by opiates or other cough remedies unless it becomes excessive. The cough associated with disease of other organs ceases with the removal of the exciting cause, but if it is troublesome it may usually be quieted by means of sedatives such as bromide of potassium or of ammonium. Cough mixtures containing opiates and other powerful narcotics should be used only on the advice of a physician. Coughing can be markedly restricted by the will if the inclination to cough is resisted firmly. Gargling with salt water is often serviceable. A nervous cough can usually be arrested by tonics, life in the open air, and cold bathing.

COULD, v. *kûd* [AS. *cuthe*, was able]: past tense of *can;* had sufficient power, moral or physical; had sufficient capacity: see CAN 2.

COULEES, n. plu. *kû-lēz'* [F. *coulée*—from *couler*, to flow as melted metals—from L. *colārĕ*, to filter, to run]: in *geol.*, streams of lava, whether flowing or become solid.

COULOMB, *kô-lōng'*, CHARLES AUGUSTIN DE: 1736—1806, Aug. 23; b. Angoulême, France: inventor of an instrument—the *Torsion Balance* (q.v.)—to measure the force of magnetic and electrical attraction. In early life, he entered the engineers. In 1777, he gained a prize by an essay on the construction of magnetic needles (*Sur les Alguilles Aimantées*). In 1779, his *Théorie des Machines simples* gained the prize offered by the Acad.; and, in 1781, he was a third time successful, in an essay on the friction and resistance of cordage, etc., used in machines. In the same year, he was elected member of the Acad., and his services were employed on all the most difficult problems in mechanics. Having offended certain influential persons by reporting unfavorably on their project of a navigable canal in Bretagne, Coulomb was for some time imprisoned, but received from the States of Bretagne a present of a seconds' watch, as a reward of his firm opposition to an expensive and unprofitable scheme. Coulomb lived in retirement during the Revolution, and became a member of the Institute, 1804. See UNITS, SCIENTIFIC.

COULTER, n. *kōl'tėr* [OF. *coultre*—from L. *culter*, a plowshare, a knife: F. *coutre*, a coulter]: the sharp iron of the plow in front of the share which cuts off the furrow-slice from the fast land; also COL'TER: see PLOW. COULTERNEB, n. *kōl'tėr-nĕb*, a sea-bird, so named from the blade-like shape of its neb or bill; the puffin.

COULTER, *kōl'tėr*, JOHN MERLE, American botanist: b. Ningpo, China, 1851, Nov. 20. He graduated at Han-

over College, Ind., 1870; was appointed botanist of the United States Geological Survey in the Rocky Mountains 1872–3; professor of the natural sciences, Hanover College 1874–9; and professor of biology in Wabash College 1879–91. He was president of the University of Indiana 1891–3; president of Lake Forest University 1893–6, when he was elected professor and head of the department of botany in the University of Chicago. Since 1887 he has also been special agent in botany for the United States Department of Agriculture. Among his many publications are: *Morphology of Spermatophytes*, with Chamberlain (1901); *Plant Structures* (1899); and *Plant Relations* (1900). He is editor of the *Botanical Gazette*.

COUMARINE, or COUMARIN, n. *kô'mă-rēn;* a compound of the aromatic series, having the formula $C_9H_6O_2$, or $C_6H_4 \begin{matrix} CH{:}CH \\ O{-}CO \end{matrix}$ and occurring in nature in the Tonka bean (the fruit of *Coumarouna odorata*, or *Dipteryx odorata*), in small white crystals, between the seed-coating and the kernel; also in woodruff (*Asperula odorata*), in the leaves and flowers of sweet-scented vernal grass (*Anthoxanthum odoratum*), and in other plants. It is obtained from the Tonka bean by extraction with strong alcohol. It crystalizes in colorless triclinic plates, which melt at 153° F. Coumarin is scarcely soluble in cold water, but dissolves somewhat in hot water, and freely in alcohol.

COUNCIL, n. *kown'sĭl* [F. *concile*, an assembly—from L. *concĭlĭŭm*, an assembly: It. *concilio*]: an assembly met for consultation, or convened to give advice; a meeting of delegates from churches, in some denominations, with only advisory or moral power, in others, of high authority, e.g. provincial, national, and ecumenical councils: see COUNCIL, or SYNOD: a municipal body: see TOWN COUNCIL. COUN'CILOR, n. *-lẽr*, a member of a council. COUN'CILORSHIP, n. the office. COMMON COUNCIL, in the city of London, and other cities, the body which represents the citizens. ECUMENICAL COUNCIL, *ĕk'ū-mĕn'ĭ-kăl-*, in *eccles. hist.*, a general council or assembly of a select number of ecclesiastics of various ranks representing the whole church. PRIVY COUNCIL (q.v.), a select number of persons for advising a sovereign in the administration of public affairs. COUNCIL-BOARD, the table around which councilors sit in consultation.—SYN. of 'council': meeting; congress; diet; convocation; convention.

COUN'CIL, or SYN'OD, in Eccles. Hist.: assembly of ecclesiastical dignitaries, for regulating the doctrine or discipline of the church over a provincial or larger area. In modern usage, council has a different application, denoting an assembly gathered from any wide area, usually a representative but not authoritative body, embracing several affiliated sects, and meeting for free and helpful conference on matters of common concern, but with no legislative function; e.g., the Pan-Presbyterian Council.

As early as the 2d c., church councils were convened, in which only one or two provinces took part, the bishops and presbyters binding themselves to carry out the decisions arrived at, in their own communities. These assemblies were commonly held in the chief town or metropolis of the province, and the bishops of such capitals—who after the 3d c., bore the title of *metropolitan*—were wont to preside over the meetings, and to consider questions of doctrine and discipline which had arisen within the territory. Over these metropolitan councils were established, at a later period, the provincial synods, exercising authority over several united provinces, and finally, the national councils. After the 4th c., when the Christian religion was established in the Roman empire, we read of *ecumenical*, i.e., universal councils, so called because all the bishops of Christendom were invited or summoned by the emperor. In some early synods, bishops, presbyters, and others, took part in the deliberations; but after the opening of the 4th c., only the bishops were convened. According to the doctrine of the Rom. Cath. Church, the pope alone, or, by way of exception in some cases, the college of cardinals had the power of convening ecumenical councils, which, in the Rom. Cath. view, represent the universal church under the guidance of the Holy Ghost. Questions were determined by the majority of votes, and the pope or his proxy presided and confirmed the resolutions carried in the synod. In matters of faith, the Holy Scriptures and the traditions of the church were the guide; while in lighter matters, human reason and expediency were consulted. In matters of faith, ecumenical councils are held to be infallible; but in other matters of discipline, etc., the latest synod decide questions. The question of the pope's subordination to the decrees of the ecumenical councils was long and warmly debated, but the recent Vatican council may be said to have set the question at rest. Twenty ecumenical councils are recognized in the Rom. Cath. Church—9 eastern and 11 western.

1. The synod of apostles in Jerusalem, wherein the relation of the Christian doctrine to the Mosaic law was determined. (Acts, xv.) 2. The first C. of Nice, 325, to assert the Cath. doctrine respecting the Son of God in opposition to the opinions of Arius: see NICE (OR NICÆA), COUNCILS OF. 3. The first C. of Constantinople, convoked under the Emperor Theodosius the Great (381), to determine the Cath. doctrine regarding the Holy Spirit: see CONSTANTINOPLE, COUNCILS OF. 4. The first C. of Ephesus, convened under Theodosius the Younger (431), to condemn the Nestorian heresy: see EPHESUS, COUNCIL OF. 5. The C. of Chalcedon, under the emperor Marcian (451), which asserted the doctrine of the union of the divine with the human nature in Christ, and condemned the heresies of Eutyches and the Monophysites: see CHALCEDON, COUNCIL OF. 6. The second C. of Constantinople, under Justinian (553), which condemned the doctrines of Origen, Arius, Macedonius, and others. 7. The third C. of Constantinople, convoked under the Emperor Constantine V., Pogonatus (681), for the condemnation of the Monothelite heresy. 8. The second C. of

Nice, in the reign of the Empress Irene and her son Constantine (787), to establish the worship of images. 9. The fourth C. of Constantinople, under Basilius and Adrian (869), the principal business of which was the peace of the eastern and western churches, and the deposition of Photius, who had intruded himself into the see of Constantinople, and the restoration of Ignatius, who had been unjustly expelled.—The ecumenical councils, to this point, may be said to have been acknowledged generally as authoritative in both the Eastern and the Western churches, though there were some large local exceptions. After this, the councils called ecumenical were so only in name, the schism between the two churches having now become complete. The remainder of the list are not acknowledged by the Greek Church.—10. The first Lateran C., in Rome under the Emperor Henry V., and convoked by the pope, Calixtus II (1123), to settle the dispute on investiture (q.v.): see LATERAN COUNCILS. 11. The second Lateran C., under the Emperor Conrad III. and Pope Innocent II. (1139), condemned the errors of Arnold of Brescia and others. 12. The third Lateran C., convened by Pope Alexander III. (1179), in the reign of Frederick I. of Germany, condemned the 'errors and impieties' of the Waldenses and Albigenses 13. The fourth Lateran C , held under Innocent III. (1215), among other matters asserted and confirmed the dogma of transubstantiation, and necessity for the reformation of abuses and the extirpation of heresy. 14. The first ecumenical synod of Lyon, during the pontificate of Innocent IV. (1245), had for its object the promotion of the Crusades, the restoration of ecclesiastical discipline, etc. 15. The second ecumenical synod of Lyon, during the pontificate of Gregory X. (1274): its principal object was the re-union of the Greek and Latin churches. 16. The Synod of Vienne in Gaul, under Clemens V. (1311), convoked to Suppress the Knights Templars, etc. 17. The C. of Constance, convoked at the request of the Emperor Sigismund, 1414: it sat for 4 years, asserted the authority of an ecumenical C. over the pope, and condemned the doctrines of John Huss and Jerome of Prague: see CONSTANCE, COUNCIL OF. 18. The C. of Basel, convoked by Pope Martin V., 1430, sat for nearly 10 years, and purposed to introduce a reformation in the discipline, and even the constitution of the Rom. Cath. Church: all acts passed in this C., after it had been formally dissolved by the pope, are regarded by the Rom. Cath. Church as null and void: see BASEL, COUNCIL OF. 19. The celebrated C. of Trent, 1545—63; opened by Paul III., and brought to a close under the pontificate of Paul IV.: see TRENT, COUNCIL OF. The Vatican C. above mentioned, 1870, decreed the infallibility of the pope: see VATICAN, COUNCIL OF.

Among the provincial or local synods convened after the division of the church into east and west, was that of Clermont (1096), when the first crusade was proposed, and that of Pisa (q.v.) 1409, when three popes were contending for the see of Rome. Among Protestants no general C. has ever been convened: but several particular synods have de-

cided various questions. Of these synods one of the more remarkable was that of Dort, 1618, when Calvin's creed was asserted against the Arminians: see ARMINIUS.

The decrees of the Rom. Cath. councils were edited by Mansi (31 vols. 1759–98). See Hefele's *Conciliengeschichte* (7 vols. 1855–74).

COUNCIL, IN CONGREGATIONAL CHURCH USAGE: assembly of delegates directly representative of churches, called for some special purpose or occasion of fellowship between churches, and dissolved when the business is finished. A C. is called usually by a church which, newly organized, seeks recognition as in fellowship with other churches; also by a church in the settlement or dismissal of a pastor, or whenever it sees its special need of the aid or advice of other churches. It may be called also by an individual member for advice as to his course in reference to an action by his church which he deems a grievance. The decisions of councils have no authority as law; but being expressive of christian sentiment in any given case, they bring to bear a strong moral pressure, which, as matter of fact, is very seldom disregarded. Councils consist of any rersonable number of churches. The selection and calling of them is done by the church (or in rare cases the individual) directly interested, issuing to such churches as are desired a formal invitation to a C. to be held at a specified place and time, for a clearly stated purpose, and to be composed of designated churches. All these churches receive an identical invitation, or LETTER MISSIVE, and each may accept or decline it according to its own judgment. Each church accepting the letter missive is represented in the C., usually by its pastor and one other delegate. Only the business indicated in the letter missive can be considered in the C. A council has no function outside of or beyond the letter missive which is its charter; nor has it power to change that letter, or to make any change in the constituency which that letter indicates. The Congl. Churches of the United States have held several general C.'s, to consider matters of common denominational importance; and, 1871, at Oberlin, O., they organized a national C., meeting once in three years; this body is not a council or assembly of churches, but rather a body of delegates from state or district associations or similar bodies, meeting in conference for the general furtherance of Christian work. Thus it is without the functions of the councils of churches above noted, and gives no advice in questions of christian fellowship between churches. It is precluded, as are also the regular councils, from exercising any legislative or judicial authority. Its moral influence has been considered helpful in various ways

COUNCIL, IN THE REFORMED EPISCOPAL CHURCH: assembly of ministers and laymen, created by the provisional constitution of the church, adopted 1873, Dec. 2. The general C. consists of all the bps. and presbyters of the church, with lay representatives who must be communicants and members of the congregations which they represent. The

lay representation consists of one deputy for each 50 communicants in each congregation, and every congregation is entitled to at least one deputy. The bps. do not constitute a separate house nor exercise a veto power, but vote with the presbyters when a vote is taken by orders. The pres. is chosen by ballot from among the bps., serves a term of one year, and during it is the presiding bp. of the church. Six or more adjoining congregations with 6 or more presbyters may associate themselves in a synod, under the jurisdiction of a bp., and the body shall embrace all the ministers of the church within the limit, and such a number of lay deputies from each congregation as the synod determines. Each congregation has its own individual council which co-operates with the minister in all matters beyond the jurisdiction of the vestry.

COUNCIL BLUFFS: city, and county-seat of Pottawattamie co., Iowa; at the base of a picturesque range of high bluffs; 3 m. e. of the Missouri river, 4 m. e. by n. of Omaha, Neb., being on the opposite bank of the river, 141 m. w.s.w. of Des Moines, by rail, 317 m. w. of Davenport, and 1,000 m. n. of St. Louis; at the junction of several railroads, chief of which are the Union Pacific, the Chicago and Northwestern, the Chicago, Milwaukee and St. Paul, the Chicago, Burlington and Quincy, the Chicago, Rock Island and Pacific, and the Illinois Central. Railroad and wagon bridges over the Missouri river connect the city with Omaha and provide transit for passenger and freight trains, etc. Council Bluffs is an important commercial point, and has an extensive trade in fruit, live-stock, produce, etc. Among the manufacturing establishments are foundry and machine-shops, paper factories, agricultural implement works, carriage works, engine works, lumber-mills, breweries, etc. The city contains a public library, which was one of the first established in the state, several parks, the most notable of which are Fairmont and Bayliss, the Iowa School for the Deaf, public and grammar schools, numerous churches, banks and many other notable public and private buildings. Council Bluffs derived its name from a council held on the bluffs in 1804, between the Indians and the explorers, Lewis and Clark. It was occupied in 1846 by a community of Mormons, who named it Kanesville, but in 1847, April, they abandoned it for Salt Lake City. The city was incorporated in 1850. The city government consists of a mayor, elected for two years, a council composed of representatives from the six wards of the city and two at large. Pop. (1910) 29,292.

COUNCIL OF JEWISH WOMEN: An association of Jewesses in America which resulted from the Congress of Jewish Women held at the Chicago Exposition of 1893. In 1896 it was formally organized, 50 sections being included. Its aims, as adopted, were 'to further united efforts in behalf of Judaism by means of study; by an organic union to bring about closer relations among Jewish women; to furnish a medium for interchange of thought

and a means of communication and of prosecuting work of common interest; to further united efforts in the work of social betterment through religion, philanthropy, and education.' In charge of the executive committee are its agencies, religion, religious school work, philanthropy, reciprocity, junior section, peace and immigration. The senior sections are members of city and state federations of women's clubs, and co-operate in public movement. It was the first organized body in some places to aid the soldiers and sailors in the Spanish-American war, co-operating with the National Red Cross Society.

Of its special work, it has aided in placing women on Sabbath school boards of synagogues; it maintains fifteen to twenty mission schools; while the philanthropies include settlements, clubs, libraries, free baths, night-schools, manual training classes, household schools, employment bureaus, penny provident funds, classes for crippled children, ice funds for consumptives, recreation rooms, gymnasiums, etc. Its last triennial convention was held in Chicago, 1905, Dec. 5-13. It has at this date, probably 10,000 members in 80 sections; 25 junior sections, with 800 members; 100 study circles, and 20 in philanthropy. See *Papers of the Jewish Women's Congress* (Philadelphia, 1893), and general reports of the Council.

COUNCIL OF WAR: conference of officers in military or naval warfare, on some matter in which the commander wishes to fortify his judgment by an appeal to that of others. The French make a special provision for a Council of Defence in a garrison. The governor or commandant may summon the heads of departments to meet him in consultation whenever he may think such a step desirable; and the opinions expressed at such meetings are placed upon record. The commandant of a garrison generally solicits the opinion of a council of war before surrendering to besiegers. The English military code leaves these matters to the discretion of the commander. In the navy, a council of war consists usually of flag-officers only; but officers of lower rank occasionally assist.

COUNCILMAN, William Thomas, American physician: b. Pikesville, Md. 1854, Jan. 2. He was educated at the University of Maryland, was for some time assistant professor in Johns Hopkins University and subsequently Shattuck professor of pathological anatomy at Harvard University. He has given much attention to the study of smallpox and has recently announced his important discovery of the probable etiology of smallpox. He has published: *A Contribution to the Study of Inflammation* (1879); *Syphilis of the Lungs* (1890).

COUNSEL, n. *kown'sĕl* [F. *conseil*—from L. *consilĭŭm*, deliberation]: advice: opinion or advice given for the instruction or guidance of another; consultation; secret opinions; design; purpose; will; one who advises in matters of law; an advocate; a barrister; see Advocate: Attorney: Barrister: V. to advise; to give advice or a deliberate

opinion to another for his guidance; to warn; to admonish. COUN'SELLING, imp. COUN'SELLED, pp. *-sĕld.* COUN'SELOR, n. *-lėr,* one who advises another; an advocate; a barrister. COUN'SELORSHIP, n. the office of a counsellor. TO KEEP COUNSEL, to keep any design or purpose secret. —SYN. of 'counsel, v.': to admonish; instruct; recommend. Counsel in the United States is a term applied indiscriminately to all members of the legal profession retained in a cause; as, the counsel for the defendant. In the United Kingdom the word has a limited and specific use, 'lawyers,' as the term is understood in America, being classified as advocates, attorneys, barristers, counselors, solicitors, etc. The function of the counselor, or more usually, barrister, is the pleading of cases in court from the data furnished to him by the attorney or solicitor in the form termed a brief (q.v.).

COUNT, v. *kownt,* formerly spelled *compt,* as in *accompt* [F. *compter* or *conter,* to count, to reckon—from L. *computārĕ,* to sum up—from *con, putārĕ,* to clear up, to arrange: It. *computare*]: to number; to sum up; to reckon; to esteem or consider; to ascribe to; to rely on: N. number; act of numbering; total amount; in *law,* a particular charge in an indictment. COUNT'ING, imp. COUNT'ED, pp. COUNT'ER, n. one who; that which is used in reckoning numbers; a table on which money is counted or goods laid; an imitation of a piece of money. COUNT'ABLE, a. *-ă-bl,* that may be numbered. COUNT'LESS, a. that cannot be numbered; innumberable. COUNT-OUT, an adjournment of the house of commons when fewer than forty members are present — only made, however, when the attention of the Speaker is called to that fact by a member. COUNT for ACCOUNT, in *Scot.,* a question in arithmetic. COUNT-WHEEL, the wheel that regulates the number of blows that a clock is to strike at the end of each hour.—SYN. of 'count, v.': to calculate; reckon; compute; estimate; enumerate; rate; judge; think.

COUNT, n. *kŏwnt* [OF. *conte;* F. *comte*—from L. *comĭtem,* an associate: It. *conte*]: name given to the great officers of state under the Frankish kings; a foreign title of nobility answering to English *earl:* COUNTESS, n. *kowntĕs* [F. *comtesse*], the wife of a count or an earl. In classical writers, down to the end of the 4th c., the meanings attached to the word *comes* (Lat. form of *Count*) were comparatively few and simple. At first it signified merely an attendant, and differred from *socius* chiefly in expressing a less intimate and equal relation to the person accompanied. Suetonius uses it for an attendant on a magistrate. A little later, in Horace's time, it was applied to those young men of family whom it had become customary to send out as pupils under the eye of the governor of a province, or the commander of an army. Very soon, the fashion of having similar attendants at home was introduced, and Horace speaks of this necessity as one of the miseries of a high position. The emperor, of course, had many *comites* (Lat. plu. of *comes)* in this sense; and to these,

as he gradually became the centre of power, he transferred the various offices of his household, and even of the state. Around his person these comites formed a sort of council of state, resembling that instituted by the first Napoleon. The example of the emperors of the west was followed by the emperors of the east, though at Byzantium the title attached less to the office than to the individual. Most of the titles of British court officials are translations of those belonging to similar officers in the lower empire. The *comes sacrarum largitionum* was the grand almoner; the *comes curiæ*, the grand-master of ceremonies; the *comes vestiarius*, the grand-master of the wardrobe; *comes equorum regiorum*, the grand equerry, etc. The *comes marcarum* or count of the marches, there can be little doubt, was the original of the *marquis* of later times. In France, the count of the palace (*comes palatii nostri*) was the highest dignitary in the state after the *maire* of the palace; and, in the 11th c., he had already acquired a rank apart from that of the other counts. He presided in the court of the sovereign in his absence, and possessed sovereign jurisdiction. The habit of instituting counts-palatine was adopted by Spain and England. Those counts who, at a later period, as rulers of provinces, assumed something approaching to sovereign power, arrogated to themselves the right of appointing counts-palatine under them—e. g., the Counts of Chartres, of Champagne, of Blois, Toulouse, etc.; and the ancient houses of Chartres and of Blois continued to claim in perpetuity the title of count-palatine as that of their eldest sons. Counts of this sovereign class owed their origin to the feebleness of the later Carlovingian kings, under whom they contrived gradually to convert the provinces and towns which they had governed as royal officers into principalities hereditary in their families. It was then that the counts came to be known by the names of their counties. Since the great revolution, the title of count in France has been purely honorary, and has been used with a license which has almost deprived it of even that character. The title was never used in England, though its Latin equivalent has always been the common translation for earl (q.v.), and the wife of an earl, from a very early period, has been styled *countess*. For the history of the office in Germany, where it was of great importance, see GRAF.

COUNT AND RECK'ONING, in the law of Scotland: form of process, by which one party compels another to account judicially, and to pay the balance which may be found due.

COUNTENANCE, n. *kown'tĕ-năns* [F. *contenance*, capacity, looks—from mid. L. *continen'tĭă*, gesture, demeanor—from L. *continērĕ*, to hold together, to preserve—from *con*, *tenērĕ*, to hold]: the whole external features of the body; the appearance of the features of the human face; look; favor; good will; support; superficial appearance; show; V. to show favor; to support; to encourage; to aid; in *OE.*, to make a show of; to act suitably to. COUN'TE-

NANCING, imp. COUN'TENANCED, pp. *-năns*t. COUN'TENANCER, n. *-sėr*, one who. IN COUNTENANCE, in favor; pleased. TO KEEP IN COUNTENANCE, to support; to aid by favor; to please by giving assurance to; to keep from dejection or dismay. TO PUT IN COUNTENANCE, to encourage; to make cheerful by support; to bring into favor. OUT OF COUNTENANCE, annoyed and vexed; abashed; dismayed. TO PUT OUT OF COUNTENANCE, to annoy and vex; to disconcert; to abash.

COUNTER, n. *kown'tėr* [see COUNT 1]: a false or spurious piece of money], as that used in reckoning in games; money in comtempt; a table for receiving goods, or laying down money on.

COUNTER, ad. *kown'tėr* [F. *contre*—from L. *contra*, against]: contrary; in opposition; the wrong way: another form of prefix CONTRA, opposition or contraiety: see list of prefixes.

COUNTER, n. *kown'tėr*, or COUN'TER-TEN'OR, *-tĕn'ėr*, [L. *contra*, in opposition to]: in *music*, the part immediately below the treble, sung by the highest adult male voice and the lowest female voice—formerly an under part serving as a contrast to a principal part.

COUNTER E. M. F.: any electromotive force in an electrical circuit which opposes the flow of current, which current is impelled to flow by some other electro-motive force great enough to send the current through the circuit and at the same time overcome the opposing or counter E. M. F. See ELECTRICITY, PRINCIPLES OF.

COUNTERACT, v. *kown'tėr-ăkt'* [F. *contre*—from L. *contra*, against, and *actus*, done]: to act in opposition to; to hinder; to defeat; to frustrate. COUN'TERAC'TING, imp. COUN'TERAC'TED, pp. COUN'TERAC'TIVE, a. *-ăktĭv*, tending to counteract. COUN'TERAC'TION, n. *-ăk'shŭn*, hindrance; action in opposition. COUNTER-AGENT, he who or that which acts in opposition to.

COUNTER-APPROACH, n. *kown'tėr-ăp-prōch'* [F. *contre*—from Lat. *contra*, against]: in *military engineering*, a. trench or passage cut by the defenders of a fortified post from some of the outworks towards the besiegers, and leading to a battery in a small work. Its object is to enable the defenders to foil the approaches of the besiegers, by carrying the fight further away from the body of the place, and enabling the besieged to enfilade the besiegers' batteries and approaches.

COUNTER-ARCH: a vertical arch connecting the top of buttresses or pillars.

COUNTER-ATTRACTIVE, a. *kown'tėr-ăt-trăk'tĭv* [*counter*, and *attractive*]: attracting in a different or in an opposite direction. COUN'TER-ATTRAC'TION, n. opposite attraction.

COUNTERBALANCE, v. *kown'tėr-băl'ăns* [*counter*, and *balance*]: to weigh against with an equal weight; to act against with an equal power or effect; to neutralize: N. equal weight or power.

COUNTER-CHARGE, n. *kown'tĕr chârj* [*counter*, and *charge*]: an opposite charge. COUNTER-CHARM, n. *-chârm* [*counter*, and *charm*]: that by which a charm is dissolved or destroyed: V. to destroy the effect of enchantment. COUNTER-CHECK, n. *-chĕk* [*counter*, and *check*]: check in opposition to another; hindrance: V. to oppose or stop by some obstacle. COUNTER-CUR'RENT, n. *-kŭr'rĕnt* [*counter*, and *current*]: a current in an opposite direction: ADJ. running in an opposite direction.

COUNTER-DRAIN, n. *kown'tĕr-drān* [*counter*, and *drain*]: a drain running parallel to a canal or artificial water-course to collect the leakage-water. COUNTER-DRAW, v. *-drâw* [*counter*, and *draw*]: to copy a design or painting by means of fine linen cloth, oiled paper, or any similar transparent substance spread over it, through which the strokes appearing are traced with a pencil.

COUNTER-EVIDENCE, n. *kown'tĕr-ĕv'ĭ dĕns* [*counter*, and *evidence*]: evidence or testimony opposing some other evidence.

COUNTERFEIT, v. *kown'tĕr-fĭt* [F. *contrefait*, deformed—from *contre*, against; *faire*, to make—from L. *contra*, against; *facĕrĕ*, to make]: to copy or imitate without authority or right; to forge; to imitate with a view to deceive; to feign; to dissemble: ADJ. false; forged; made in imitation of something else; not genuine: N. a cheat or impostor; one who pretends to be what he is not; that which is made in imitation of something else: in *OE.*, a likeness; a copy. COUN'TERFEIT'ING, imp.: N. the act of one who counterfeits; the process: see COINING. COUN'TERFEIT'ED, pp. COUN'TERFEIT'ER, one who.—SYN. of 'counterfeit, a.': spurious; fictitious; suppositious; adulterated; sophisticated; fabricated; hypocritical.

COUNTERFESANCE, n. *kown'tĕr-fēz'ăns* [OF. *contrefaisance*—from *contrefaire*, to counterfeit]: in *OE.*, a counterfeiting; a forgery.

COUNTERFOIL, n. *kown'tĕr-foyl* [*counter*, and L. *fŏlium*, a leaf]: the corresponding leaf; the corresponding part of a tally or check. COUNTER-GAUGE, n. *-gāj* [*counter* and *gauge*]: in *carpentry*, a method of measuring joints.

COUN'TERFORT, in Fortification: mass of stone or brickwork added to the revetment of a rampart, in such a way as to form a buttress for resisting the pressure of the mass of earth. Counterforts occur at intervals of about 20 ft., and assist in preventing the earth from pushing down the revetment-wall into the ditch.

COUNTER-GUARD, n. *kown'tĕr-gârd* [*counter*, and *guard*]: in *mil.*, an outwork designed to defend the two faces of a bastion or ravelin from a direct fire, so as to retard a breach being made: it consists of two lines of rampart parallel to the faces of the bastion or ravelin, and separated from them by a narrow ditch. The crest of the C. must be some three ft. lower than that of the works it covers, in order not to obstruct the defense. Lest the enemy should establish a battery on the C., the terre-

plein, or flat space behind its parapet, is made very narrow.

COUNTER-IRRITANT, *kŏwn'tĕr-ĭr'ĭ-tănt* [*counter*, and *irritant*]: in *med.*, substance employed to produce an artificial disease, or secondary irritation, for the relief of the original one. Such substances are applied to the skin so as to redden (rubefacients), to vesicate (blisters or vesicatories), or to produce pustules, purulent issues, or even sloughs of skin and of the subcutaneous textures. The milder are mustard (see CATAPLASM), turpentine applied on warm cloths, and spirit or acetic acid in lotion. The stronger are blisters of cantharides (q.v.) or of ammonia; croton-oil (q v.) or tartar emetic (q.v.), in ointment; setons, caustic or pea-issues, and the moxa; and above all, the actual cautery (q.v.) or hot iron. None of the stronger C. should be used without careful consideration and medical advice; great mischief is often done by their careless or improper use. C. relieve internal pain, and tend to promote the absorption of morbid effusions.

Among horses, C. are much used for strains and diseases of the joints, but should never be applied in recent cases, or while the part is hot or inflamed. Cantharidine preparations, or ointment of biniodide of mercury, are the most convenient. For cows, use hot fomentations, followed by the smart infriction of mustard-paste; for dogs, soap-liniment, strengthened, if required, by ammonia or turpentine.

COUNTERMAND, v. *kown'tĕr-mănd'* [F. *contremander* —from L. *contra*, against; *mandārĕ*, to command]: to give an order contrary to one given before; to annul or forbid the execution of a former command: N. a contrary order. COUN'TERMAND'ING, imp. COUN'TERMAND'ED, pp.

COUNTERMARCH, v. *kown'tĕr-mârch'* [*counter*, and *march*]: to march back: N. a marching back; a change of measures; in *mil.*, to move a body of troops to the rear without any change of their original order—that is, to move them backward. COUN'TERMARCH ING, imp.: see MARCHING. COUN'TYRMARCHED, pp. *mârcht.*

COUNTER-MARK, n. *kown'tĕr-mârk* [*counter*, and *mark*]: mark or token added in order to afford security or give proof of quality; stamp seen on some ancient coins or medals, supposed to denote that the coin was captured from an enemy; artificial cavity made in the teeth of horses to disguise their age: V. to add a mark as a test of quality, tc.; to make an artificial cavity in the teeth of a horse.

COUNTERMINE, n. *kŏwn'tĕr-mīn* [*counter*, and *mine*]: a gallery sunk in the earth in the attack or defense of a fortified place in order to blow up the works of an enemy is called a *mine*—one dug to destroy a *mine* is called a *countermine;* a secret project to frustrate any contrivance: V. to mine in opposition, or to search for an enemy's mine; to frustrate by secret measures: COUN'TERMI'NING, imp.: COUN'TERMINED, pp. *-mīnd.*—Countermine, in *military engineering*, is a gallery or chamber excavated under the glacis or some other part of a defence-work of a fortress. Its

purpose is to foil a besieger. In a fortress on a large scale, there are envelope galleries, counter-scarf galleries, listening galleries, galleries of communication, and other subterranean passages, under various parts of the outworks, all for the purpose of assisting the defenders in discovering and frustrating plans laid by the besiegers. Listening galleries are sometimes pushed forward even to the foot of the glacis. In such places, selected men put their ear to the ground, and listen for the approach of an enemy, as denoted by the sound of tools used in driving a mine or gallery of attack. The sound of a pickaxe so employed can be heard through the ground at a distance of 60 feet. As there are no openings above, these galleries cannot be driven beyond a certain distance, as the sappers would be stifled for want of air. If a mine be driven to blow up the defense works, a C. is driven to blow up the besiegers; and sometimes the two parties carry their works so far as to meet in the subterranean passages, and there fight. If there be only a thin wall of earth left between them, they will fire pistols through bored holes, or drive in cartridges or smoke-balls. This work is carried on mostly by sappers and miners.

COUNTER-MOTION, n. *kown'tĕr-mō'shŭn* [*counter*, and *motion*]: an opposite motion. COUN'TER-MOVE'MENT, n. *-mōv'mĕnt* [*counter*, and *movement*]: a movement in opposition to another.

COUNTERPANE, n. *kown'tĕr-pān* [F. *courte-pointe*, a counterpane, corrupted into *contre-pointe*—from OF. *coulte-pointe*—from L. *culcĭta puncta*, a stitched cushion]: the upper covering of a bed, having the stitches arranged in patterns for ornament; a quilt or coverlet.

COUNTERPANE, n. *kown'tĕr-pān* [OF. *contrepan*, a pledge, a pawn—from *contre*, against; *pan*, a pawn or gage]: in *OE.*, the counterpart of a deed or writing.

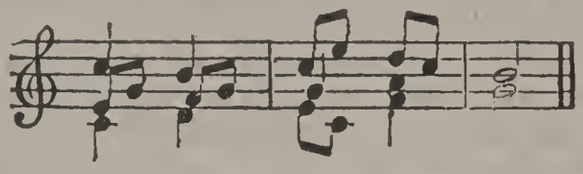
COUNTERPART, n. *kown'tĕr-pârt* [*counter*, and *part*]: the part that answers to another; the key of a cipher; in *music*, the part to be applied to another, as the *bass* is the counterpart to the *treble*.

COUNTER-PASSANT, *kown'tĕr-păs'sant*, in Heraldry: when two beasts are passing each other the contrary way.

COUNTER-PLEA, n. *kown'tĕr-plē* [*counter*, and *plea*]: in *law*, in an incidental pleading, the plaintiff's reply to the defendant's plea. COUN'TER-PLEAD, v. *-plēd*, to plead the contrary of; to deny. COUNTER-PLOT, n. [*counter*, and *plot*]: artifice opposed to an artifice: V. to oppose one machination by another. COUN'TER-PLOT'TING, n. act of plotting against a plot.

COUNTERPOINT, n. *kŏwn'tĕr-pŏynt* [F. *contrepoint*, counterpoint—*lit.*, point against point—from L. *contra-punctus:* It. *contrappunto*]: an opposite point: in *music*, the placing of notes so as to indicate the harmony of parts; the art of combining and modulating sounds in several distinct parts. In the early age of musical science, notation was represented by mere points on the lines. The setting

of parts to a melody already represented by a row of dots or points was therefore called *punctum contrapunctum*. In this respect C. is nothing else but the uniting of various harmonious parts. In a more circumscribed sense, it is the art or manner of accompanying a given melody with other parts. Simple C. is a musical combination where the melody of the parts is not mixed or changed, and may be either all in notes of the same length or of different lengths, as for example:



If the parts be constructed in regard to one another so that

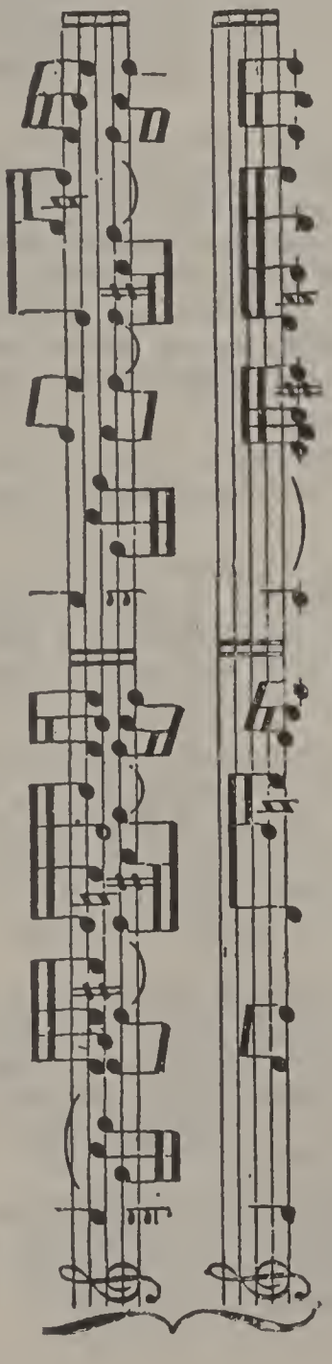


Fig. 1.

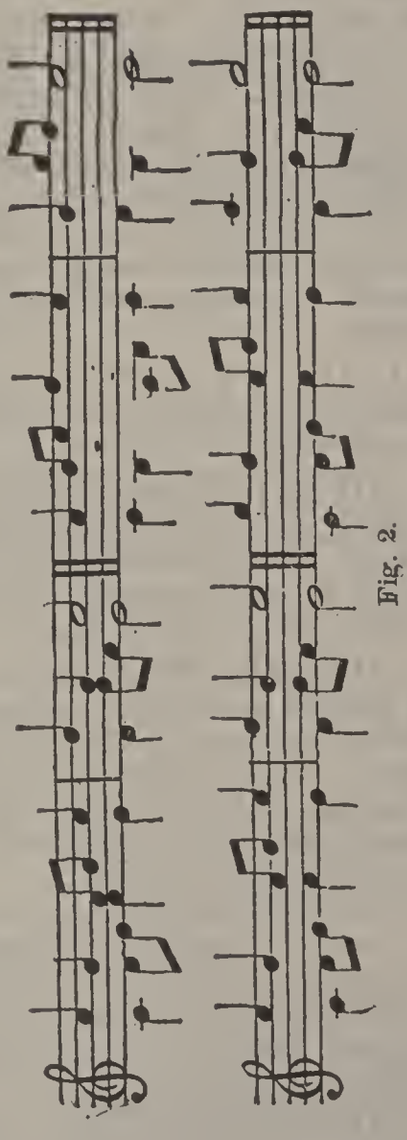


Fig. 2.

they can be changed, or transposed over or under each other, without alteration in the movement, or injury to the harmony, it is then called double C., as in Fig. 2. As double C. consists of the changing or transposing of one part over or under another, it follows that there must be as many different kinds of it as there are different intervals in the scale. We have, therefore, double C. of the octave as in Fig. 1, of the twelfth, tenth, ninth, etc. That of the octave, is, however, the most useful, as it is more free in movement, and easier to recognize. Fig. 2 admits of different transpositions.

The first indication of contrapunctal writing is to be found in the 12th c. by Adam de la Hale, who received a genuine artistic education in the Netherlands, but was far in advance of his time; for his style of music was forbidden to be performed in the church by a bull of the pope, who gave Palestrina an order to replace it with a more simple music. The best masters for C. have been Kirnberger and Albrechtsberger in former times; and, in modern times, Schneider, Hauptmann, and Dehn.

COUNTERPOISE, n. *kown'tĕr-poyz* [F. *contre-peser*, to counterpoise—from L. *contra*, against; *pensārĕ*, to weigh: F. *poids;* OF. *pois*, a weight]: a weight against a given weight; an equal weight; a weight sufficient to balance another in the opposite scale; a force or power sufficient to balance another force or power: V. to weigh against with an equal weight; to act against with equal power and effect. COUN'TERPOIS'ING, imp. COUN'TERPOISED, pp. *-poyzd.*

COUNTER-POISON, n. *kown'tĕr-poy'zn* [*counter*, and *poison*]: a medicine which destroys the effects of a poison; an antidote.

COUNTER-PROJECT, n. *kown'tĕr-prŏj'ĕkt* [*counter*, and *project*]: a scheme or proposal given in opposition to another. COUN'TER-PROOF, n. *-prôf*, in *engraving*, a print taken off from another just printed, with the view of ascertaining the state of the plate.

COUN'TER-PROOF: impression obtained from a freshly-printed proof of an engraving, by laying it, before the ink is dry, upon plain paper, and passing it through the press. By this means the ink is transferred from the wet proof to the plain paper, and a reversed impression is obtained, often of use in enabling the engraver to judge of the success of his work.

COUNTERSCARP, n. *kown'tĕr-skârp* [L. *contra*, against; It. *scarpa;* F. *escarpe*, the slope of a wall, or the steep front of a fortification]: in a *fortified place*, the slope or nearly vertical side of the ditch next the enemy, often the whole covered way which surmounts it,—the interior slope is called the *scarp* or *escarp.*

COUNTER-SECURE, v. *kown't r-sē-kūr'* [*counter*, and *secure*]. to render more secure by corresponding means, or by means to match. COUN'TER-SECU'RITY, n. *-rĭ-tĭ*, security given to one who has become surety for another

COUNTERSIGN, n. *kown'tĕr-sīn* [F. *contresigner*, to countersign—from L. *contra*, against; *signum*, a mark]: a private signal, word, or phrase given to sentinels on guard, inspectors, etc., to enable them to distinguish friends: it is usually a simple word secret except to those immediately concerned, and is changed often as requisite for security; a watchword: V. to sign a document in addition to another to attest its authenticity. COUN'TERSIGN'ING, imp. COUN'TERSIGNED, pp. *-sīnd*. COUN'TER-SIG'NAL, n. *-sĭg'năl*, a signal to answer or correspond to another. COUN'TERSIG'NATURE, n. the signature of a secretary, or of a subordinate, added to the signature of a superior.

COUNTERSINK, v. *kown'tĕr-sĭnk* [*counter*, and *sink*]: to drill a conical depression in wood or metal to receive the head of a screw.

COUNTER-SLOPING, *kown'tĕr-slō'pĭng* [*counter*, and *slope*]: in *mil.*, a surface which slopes inward instead of outward, as is usual in fortifications—usually applied to glacis and revetments.

COUNTER-TENOR, *kown'tĕr-tĕn'ẽr* [F. *contreteneur:* It. *contratenore*—from *tenore*, a tenor]: see COUNTER 3.

COUNTERVAIL, v. *kown'tĕr-vāl* [OF. *contrevaloir*, to avail against—from L. *contra*, *valĕrĕ*, to be strong]: to act against with equal force or power; to equal; to balance. COUN'TERVAIL'ING, imp. COUN'TERVAILED', pp. *-vāld'*.

COUN'TER-VAIR, *kown'tĕr-vãr:* a heraldic fur. It differs from *Vair* by having its cups or bells of the same tinctures placed base against base, and point against point. The tinctures are OR and AZURE.

COUN'TERVALLA'TION, in Military Engineering: chain of posts constructed by the besiegers of a fortified place; it completely surrounds the place at a certain distance, and is intended to prevent sorties of the besieged. The posts are generally small redoubts, either isolated or connected by a line of earthworks. It is only during very protracted sieges that countervallations are constructed. They bear a certain relation to circumvallation (q.v.).

COUNTER-VIEW, n. *kown'tĕr-vū* [*counter*, and *view*]: an opposite view; a posture in which two persons front each other; contrast. COUN'TER-VOTE, v. *-vōt*, to vote in opposition to; to outvote.

COUNTER-WEIGH, v. *kown'tĕr-wā* [*counter*, and *weigh*]: to weigh against; to counterbalance. COUN'TER-WHEEL, v. *-hwēl*, to move backward and forward in opposition to other movements. COUN'TER-WORK, v. *-wẽrk*, to hinder by contrary operations; to counteract.

COUNTESS, n. *kownt'ĕs* [F. *comtesse*, fem. of *comte*—see COUNT 2]: the wife of an earl or count.

COUNTING, n. *kownt'ĭng* [see COUNT 1]: reckoning; computing. COUNTING-HOUSE or -ROOM, the room or house appropriated by a trader, manufacturer, or merchant, for keeping their business-books, accounts, etc.

COUNTLESS, a.: see under COUNT 1.

COUNTRY, n. *kŭn'trĭ* [F. *contrée*, country—from It. *contrada*, the district lying opposite you—from mid. L. *contrātă*, the country lying before or opposite—from L. *contra*, overagainst—*lit.*, land seen before you, as by mariners from the sea]: the land or territory occupied by a people or nation; rural districts; a kingdom or state; any tract of land; one's residence or native soil: ADJ. pertaining to the districts beyond a town; rural; rustic; untaught; rude. COUNTRY SEAT, a residence at a distance from a town or city. COUNTRYMAN, a rustic; one not a native of town; one born in the same country. COUNTRIFY, v. *kŭn'trĭ-fī*, to make or alter so as to have a rural or countrified appearance; to make to have the manners or habits of the country. COUNTRIFIED, a. *-fīd*, having the air and mien of a rustic.—SYN. of 'country, n.': land; globe; world; territory; region; earth;—of 'countryman': peasant; clown; hind; swain; husbandman.

COUN'TRY DANCE [improperly used for CONTRA DANCE, Fr. *contre-danse*, of which the English term is a corruption]: dance in which as many couples can take part as there is space to accommodate them; at the commencement, the gentlemen being ranged on one side, and the ladies on the opposite. In its figure, the dancers are constantly changing places, leading one another forward and back, up and down, parting and uniting again. The numerous different figures, which give an interest to this dance, are generally designated with a particular name. The music is sometimes in $\frac{2}{4}$ time, and sometimes in $\frac{6}{8}$ time, and the step is more smooth than springing: see DANCING.

COUNTY, n. *kown'tĭ* [Norm. F. *counté;* F. *comté;* It. *contea*, a county—from L. *comĭtem*, a companion (see COUNT 2)]: originally an earldom or district under a count; a particular division or district of a state or kingdom; a shire. The terms county and shire are applied on no uniform principle. In England and Scotland, the shires are also called counties; but in Ireland, the term county seems to be exclusively employed. Such, likewise, appears to be the case in the British colonies and United States: see SHIRE. In the United States, county is an administrative subdivision of each State, intermediate between the body as a whole and the town, parish, or municipality. In the North (except the wild northern parts of Maine and New Hampshire), and the thickly settled States of the central West, it is an aggregation of actual towns, there being no county land which is not a part of some town. In the South and the more sparsely settled Western States, the town is a piece cut from the county, the greater part of which may be entirely unorganized, except as divided by the State into artificial sections for administrative convenience or the saving of future boundary disputes; townships (as also in Aroostook County, Me.), military districts as in Georgia, 'wards' as in Louisiana, 'beats' as in Mississippi, etc. The relations of the county to the political and social life of the community also vary widely in different sections, owing to historic development.

COUNTY, n. *kown'tĭ:* in *OE.*, for COUNT, frequently found in Shakespeare.

COUN'TY COR'PORATE, in England: one of certain cities and towns, some having territory annexed to them, some scarcely any, which possess the privilege of being governed by their own sheriffs and other magistrates altogether independently of the counties in which they are situated. The act 3 Geo. I. c. 5, for regulating the office of sheriff, enumerates twelve cities and five towns in this position. The cities are London, Chester, Bristol, Coventry, Canterbury, Exeter, Gloucester, Lichfield, Lincoln, Norwich, Worcester, and York. The towns are Kingston upon-Hull, Nottingham, Newcastle-upon-Tyne, Poole, Southampton. Coventry ceased to be a county corporate 1842; and Berwick-on-Tweed is now one of the eighteen. There is one similar county corporate in Scotland (Edinburgh); and in Ireland, eight (as Dublin and Limerick). See LOCAL GOVERNMENT.

COUN'TY COURTS: Courts having jurisdiction in counties. According to Blackstone, the *Sciremote* or ancient county court was established in England by Alfred the Great about 870; the suitors themselves being the judges. Henry II. appointed justices of assize courts, 1176, and thus the county courts became superseded for judicial purposes. There is still a remnant of jurisdiction left in these ancient courts, unconnected, however, with the recovery of debts; outlawries of absconding offenders are here proclaimed, and certain proceedings connected with the election of coroners, knights of the shire, etc., take place in the old county court.

The modern county courts were established in all the cities and large towns of England and Wales, 1846, chiefly by the efforts of Lord Brougham; and the courts commenced business, 1847, March. In 1865 an equity jurisdiction was conferred on the county courts to £500, and the judges have all the power and authority of the Court of Chancery in equitable suits.

The county courts are courts of record. In England and Wales there are 499 courts, divided into 55 circuits, presided over by 56 judges. The judges are appointed by the Lord Chancellor, or, where the whole district is in the duchy of Lancaster, by the chancellor of that duchy. Their salaries, owing to extended jurisdiction, are now nearly all £1,500 and have, with slight variations, been made uniform throughout the country. Judges resigning from permanent disability are allowed a retiring pension not exceeding two-thirds of their annual salary. Each court has a registrar, appointed by the judge. In certain classes of cases a jury may be demanded. The number of jurymen to try a cause in county court is five. There were only 993 causes tried by a jury in 1878, out of 616,490 causes tried. The plaintiff obtained a verdict in 599,883 cases, and the defendant obtained verdicts or non-suits in 16,607 cases. There is a right of appeal in all cases where more than £20 is claimed, and by leave of judge in all other cases. There were only 87 appeals in 1878.

There is no uniformity in the judicial system of the states in the United States either in name, number, character or jurisdiction. County court is therefore in the United States a name for a class of courts having civil jurisdiction in controversies of medium grade, varied powers in the charge and care of persons and estates within legal guardianship, a limited criminal jurisdiction, appellate jurisdiction over justices of the peace and numerous powers and duties in the administration of county affairs.

Care should be taken however not to confound this class of courts with other courts either of original and general or of limited jurisdiction, which for the transaction of business have sittings in the several counties of the states. The jurisdiction of the county courts or of other courts sitting in the several counties and the length of official terms of the judges cannot be given without a statement of the judicial system of each state. Judges for the several courts in the states, except the federal judges, are, in most of the states elected by a popular vote. See JUDICIARY IN THE UNITED STATES.

COUNTY PALATINE: in England, a county formerly possessing peculiar privileges. The name, derived from *palatium*, palace, was applied because the earls who owned the counties had grand palaces and maintained themselves in almost regal state. Within their jurisdictions, these owners enjoyed such royal powers as the pardoning of crime and issue of various writs. The courts of the county palatine had exclusive jurisdiction in law and equity of all cases arising within the limits of their respective counties, the judges who held them sat by special commission from the owners of the several franchises and under their seal, and all process was taken in the name of the owner of the franchise, though subsequently to the 27 Hen. VIII. c. 24 it ran in the king's name. These counties have either passed into the hands of the crown, or have lost their peculiar privileges to a great degree.

COUN'TY RATE: local tax in England and Wales, for defraying the expenses to which counties are liable; such as the maintenance of bridges, jails, lunatic asylums, prosecutions and costs incident thereto, coroners, etc. It is levied on all property liable to be assessed for the relief of the poor. Rogue-money in Scotland, and the grand jury cess in Ireland, are the taxes most nearly resembling the English county rate.

COUP, n. *kô* [F. *coup*—from OF. *colp*—from It. *colpo*—from mid. L. *colpus*, a stroke]: a blow; a stroke. COUP-DE-GRACE, n. *kô'dĕ-grâs'* [F. stroke of mercy]: finishing-stroke; death-stroke. COUP-DE-MAIN, n. *kô'dĕ-măng* [F. stroke of hand]: in *mil.*, a sudden and vigorous attack to capture a position. COUP-DE-SOLEIL, n. *kô'dĕ-sŏl-ĕl'* [F. a stroke of the sun]: a disease produced by exposure of the head to the rays of the sun; sunstroke (q.v.). COUP-D'ETAT *kô'dā-tâ'* [F. a stroke of state]: a sudden and decisive blow; arbitrary encroachment suddenly effected by any of the

governing authorities on the constitution of the state, altering or setting aside the prerogatives of other parts of the body politic: in *politics*, a stroke of policy. COUP-D'ŒIL, n. *kô-dāl* [F. a stroke or glance of the eye]: a general view of anything, comprehending in one survey all the relations of a complicated affair: in *art*, the general effect of a picture or group at first sight. COUP DE THEATRE, a trick of the stage to produce an effect by surprise; thence, any analogous proceeding.

COUP, v. *kowp* [Icel. *kaup*, a bargain, a sale; *kaupa*, to bargain, to sell]: in *Scot.*, to bargain; to barter; to overturn: N. a bargain: see COPE 3.

COUPÉ, n. *kô-pā'* [F. *coupé*, cut, broken: connected with COUP]: the front division of a stage-coach or diligence; [U. S.]: a four-wheeled, two-seated close carriage with driver's seat outside.

COUPED, *kôpd* [Fr. *coupé*], in Heraldry: head, or any limb of an animal cut off from the trunk, and smooth. It is distinguished from *erased*, i. e., forcibly torn off, and therefore ragged and uneven. A distinction is made also between *coulped* and *couped close*, the latter signifying that the head or limb is cut off close, leaving no part of the neck or trunk attached to it. When crosses, bars, bends, and the like, are cut so as not to touch the sides of the escutcheon, they also are said to be couped.

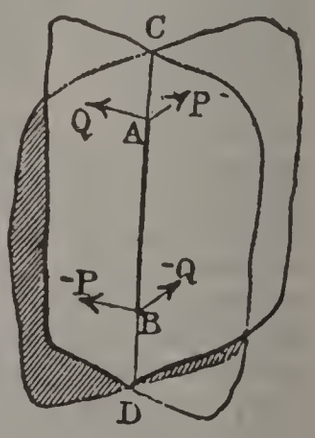
COUPLE, n. *kŭp'l* [F. *couple*—from L. *copŭla*, a band or tie]: the chain or tie that holds dogs together; two or a pair; the male and female; a man and his wife; two of the same species or kind taken together; a brace; in *math.*, a pair of forces acting on a body on each side of a fixed point, so as to turn the body round this fixed point: V. to link, chain, or unite one thing to another; to fasten together; to unite as man and wife; to marry. COUPLING, imp. *kŭp'-lĭng:* N. that which couples or connects, as the *coupling* of two railway carriages; in an *organ*, a register (handle or knob controlling action) by which two or more rows of keys can be connected by a mechanism so that they can be played together. COUPLED, pp. *kŭp'ld.* COUPLET, n. *kŭp'-lĕt* [F.]: any two lines which rhyme; a distich; but the term is more frequently used by critics to denote two lines which contain the complete expression of an idea, therefore to a certain extent independent of what precedes or follows. The poetic wits of the age of Queen Anne excelled in this kind of aphoristic versification. Pope, it has been said, reasons in couplets. COUPLES, n. plu. *kŭp'ls*, a pair of opposite rafters in a roof nailed at the top where they meet, and united by a beam of wood at the bottom. COUP'LINGS, n. plu. sliding boxes or nuts that connect the ends of a tube, or one tube or shaft to another. COUPLEMENT, n. *kŭp'l-mĕnt*, in *OE.*, a pair; two or more together. COUPLING-PIN, a bolt used for connecting railway carriages, and for certain parts of machinery.

COUPLE, VOLTAIC. See BATTERY, ELECTRIC.

COUP'LES, in Statics: pairs of equal parallel forces acting in opposite directions, and at different points of a body. When two parallel forces act in opposite directions on a

body, they may be replaced by one equal to their difference acting parallel to them in the direction of the greatest, at a point *not* between but *beyond* the points where they are applied; and which point recedes the further from their points of application the nearer they approach equality, receding to an infinite distance when they become equal, and when their resultant accordingly is zero: (see PARALLEL FORCES). In this limiting case, the forces constitute a couple; they have no tendency to *translate* the body; their action goes wholly to make it rotate about an axis passing through its centre of gravity, and perpendicular to the plane in which the couple acts. Such being the case, a couple cannot be replaced or counteracted by any single force, for such a force would produce translation; it can only be replaced or balanced by other couples. The length of the straight line which meets the lines of action of the forces at right angles is called the 'arm' of a couple, and the product of the force into its arm is called its 'moment.'

Most of the leading propositions in the theory of C. are readily seen to be true, as soon as stated. For instance, as the axis round which a couple tends to make a body rotate passes through the body's centre of gravity perpendicularly to the plane of the couple, it does not matter what position the couple occupies in its own plane. Also, supposing the body to be rigid, the couple may be moved into any plane parallel to its own, provided its new position be rigidly connected with the original position. It is obvious also, on the principle of the lever, that the efficiency of the couple depends on its moment simply, so that its arm may be shortened or lengthened at pleasure, provided the force be increased or diminished as the case may require, so as always to make the product of the force and arm the same. Suppose ropes fastened at the bow and stern of a ship pulling with equal force in opposite directions; they will make the ship turn round an axis through its centre of gravity, at a rate depending on the force applied to the ropes. If the ropes be fastened to opposite points of the vessel nearer midships, it will turn round at the *same* rate, only provided the force applied to the ropes be *increased;* and, on experiment, it would be found that the force must be increased so as that its product into the distance between the ropes shall equal the product of the force in the first case into the length of the ship. Through this we can compound C. acting in the same plane, for we can turn them round till their arms coincide, and then give them a common arm; their forces will then act in the same lines, when their resultant into the arm will be the new couple. So two C. situated in planes inclined at any angle to each other may be replaced by a single couple (see fig). Suppose the C. both to be moved in their respective planes till their arms coincide with the line of intersection of the planes, CD.



Bring them then to a common arm in this line, AB. At each end of this arm we shall have a pair of forces, say P and Q, inclined to one another at the angle of inclination of the planes. Their resultant, by the composition of forces, will be a force R, acting in a line between the planes. We shall have then forces R acting at each end of the arm, and evidently in directions parallel and opposite. R × arm, AB, then, is moment of the resultant couple. Having seen how to compound C. whose planes are inclined to one another, the theory of the composition of C. may be said to be complete, for if they are in parallel planes, we know we can bring them into the same plane and to a common arm, and so into a common couple. In statical theory, any number of forces acting on a body, and not in equilibrium, may be reduced to a single force, a single couple, or a single force and a single couple. We have shown that the C. may all be reduced to one, as well as those forces which do not produce couples. If the single force do not act perpendicularly to the plane of the couple, it can always be compounded with the forces of the couple, so as to reduce the whole to a single force; if it act perpendicularly, then it cannot be compounded with the couple, and the body will have at once a motion of translation and motion of rotation.

COUPON, n. *kō'pŏng* [F. *coupon*—from *couper*, to cut or cut off]: warrant or note or check, billet, certificate, etc., attached as a counterpart to transferable bonds: coupons are successively cut off to be presented for payment of dividends as they fall due: the term is applied chiefly to a dividend or interest warrant, to be presented for payment by holders of debentures such as government bonds.

COUPURE, n. *kō'pūr* [F. *couper*, to cut]: in *mil.*, an intrenchment of any kind formed behind a breach, whose objects is to enable the besieged to prolong the defense; a ditch and parapet made through the rampart as far as the revetment.

COURAGE, n. *kŭr'āj* [F. *courage*—from OF. *corage*—from mid. L. *coratĭcum*—from F. *cœur*, heart, courage—from L. *cor*, the heart: comp. Gael. *curaidh*, a hero; *curaisd*, courage]: strength of mind; bravery; fearlessness; valor; resolution; that quality of mind which enables men to encounter dangers and difficulties with firmness and without fear. COUR'GEOUS, a. *-ā'jŭs*, brave; fearless; daring; endowed with firmness; without fear. COURA'GEOUSLY, ad. *-lĭ*, in a courageous manner; stoutly; boldly. COURA'GEOUSNESS, n. *-jŭs-nĕs*, the quality of being courageous; bravery.—SYN. of 'courage': intrepidity; daring; gallantry; heroism; hardihood; firmness; boldness; resolution; audacity;—of 'courageous': bold; intrepid; undaunted; valiant; gallant; heroic; valorous; hardy; enterprising; adventurous.

COURANT, n. *kû-rânt'* [F. *courant*, running—from F. *courir*, to run—from L. *curro*, I run]: that which spreads news very quickly; a newspaper: in *heraldry*, a., running. COURANTO, n *kû-răn'tō* a piece of music in triple time.

COURB, v. *kôrb* [F. *courber*, to bend, to bow—from *courbe*, a curve—from L. *curvus*, crooked, curved]: in *OE.*, to bend or bow; to stoop as a suppliant. COURB'-ING, imp. COURBED, pp. *kôrbd.*

COURBET, *kôr-bā'*, GUSTAVE: 1819, June 10—1877, Dec. 31; b. Ornans, France: painter. He was sent to Paris to study law 1839, but soon changed his mind, took lessons in art, studied the works of famous Florentine, Venetian, and Flemish artists, and began exhibiting 1844. His works comprised, portraits, landscapes, and genre pieces, and he soon became noted for studies of the nude female form. In 1855, dissatisfied with the places assigned some of his paintings in the Salon exhibition and the rejection of others, he withdrew all his works, erected a building near the Salon, and there exhibited 40 paintings at a small admission fee. In 1860, the jury of the Munich exhibition assigned him an entire room. He held extreme views in art, religion, and politics, was an early adherent of the commune, directed the overthrow of the Vendôme column, was prohibited exhibiting 1872, and was condemned to pay the cost of a new column on the Place Vendôme 1873, for which his property was confiscated and sold.

COURBEVOIE, *kôr-beh-vwâ':* town of France, dept. of Seine, on the left bank of the river Seine, about 5 m. n.w. of Paris. Courbevoie has well-built houses, mostly supplied with gardens, and large barracks erected by Louis XV. Its principal manufactures are white lead and brandy, and it has some commerce by the Seine. Pop. (1886) 15,937.

COUREUR DES BOIS, n. *kôr-ér' dā bwâ*, [F.], a French-Canadian trader or hunter.

COURGNÉ, *kórn-yā:* market-town of Piedmont, at the foot of a hill on the w. side of the Orca, 12 m. w.s.w. of Ivrea. It has several convents. Pop. 5,600.

COURIER, n. *kûr'ĭ-ẽr* [F. *courrier;* OF. *courier*—from L. *curro*, I run]: a runner; a special messenger with letters or dispatches from a distance; a traveling servant attached to a family.—There are two distinct classes of couriers, *Government* and *Private.* The first are employed by government to carry, securely and expeditiously, important dispatches to and from ambassadors at foreign courts. Private Couriers who act as guides to and attendants on travelers are common on the continent of Europe, and are useful to those having much baggage or unacquainted with the foreign languages and moneys. Their special duty is to make all arrangements for journeys, and to relieve their employers as far as possible of anxiety about passports, exchange of money, hotel negotiations, and the like. The speaking of several languages is therefore one of the many important qualifications of a good courier.

COURIER, *kô-re-ā*, PAUL LOUIS: 1772, Jan. 4—1825, Apr. 10; b. Paris: French political writer. He was educated for the army, but, without neglecting military studies he showed special predilection for ancient literature. In 1793 he became lieut. of artillery, served in the Italian

campaign 1798–9, and in 1803 was appointed *chef-d'escadron.* After the battle of Wagram, he tendered his resignation, which was accepted. He went to Switzerland and Italy, returning to his native country 1812. Before this he had been known publicly only by his translations from the classics. In 1816 he appeared for the first time as a political pamphleteer, and rapidly obtained a brilliant reputation. The piece in which he made his *début* was the *Petition aux Deux Chambres.* In 1819–20, he published in a journal, called *Le Censeur,* a series of letters containing an exposition of his political ideas, which were those of an ardent constitutional reformer. These letters, for keenness, wit, and eloquence, have been compared to those of Pascal. His *Simple Discours* (1821) was directed against the project then entertained of purchasing Chambord for the Duc de Bordeaux in the name of the nation. It is exceedingly vigorous, clever, and sensible, and had great success. For his audacity, he was tried and condemned to one month's imprisonment. In 1823 he published his *Livret,* a kind of memorandum-book; and in 1824 his *Pamphlet des Pamphlets,* finely called by Armand Carrel *Le Chant du Cygne* (the Swan's Death-song). His death was by assassination near his own house at Veretz, dept. of Indre-et-Loire, a little before sunset the murderer was never detected. C. was the pamphleteer of the middle class. Manly earnestness, pleasant wit, cutting irony, and admirable sense are his characteristics. Time, which generally dims the lustre of a pamphleteer's reputation, has not touched that of C., which is still as bright as ever.

COURLAN, *kôr'lan:* bird of the genus *aramus,* sometimes classified with the rail family, generally chocolate-brown in color, with white-streaked feathers, toes cleft to the base, and broad rounded wings 13 inches long. It is a wading bird, the only one of its family, has a peculiar cackling cry, attains a length of 27½ inches in Fla. and the W. Indies, but is much larger and less streaked with white in S. America, and is a rapid runner and short flyer.

COURLAND or KURLAND, *kôr'land:* Russian government, a province of what are called the Baltic provinces; lat. 56°—58° n., long 21°—27° e. It was formerly an independent duchy—properly, indeed, two duchies, Courland and Semgall—and belonged, with Livonia, to the Teutonic Knights. The difficulty of resisting the Russians led to the acknowledgment, 1561, of the feudal sovereignty of Poland; and the last grand-master, Gotthard Kettler, secured the duchies of Courland and Semgall for his family. The country was long distracted by the contentions of two parties, one Russian and the other Polish; and after being for some time completely under Russian influence, and the scene of many Russian intrigues, it was finally united to Russia, 1795. It has about 10,500 sq. m.; is generally level, with ranges of low hills, and contains many lakes, bogs, forests, and downs, but some parts have a very fertile soil. The proprietors of land are mostly German; the peasantry, of Lettish or Esthonian extraction, are engaged chiefly in

husbandry; there is little manufacturing industry or commerce. The capital is Mitau, but the most flourishing town is Libau.—Pop. of Courland (1902) 680,500, mostly Protestants.

COURSE, n. *kōrs* [F. *cours*—from L. *cursus*, a course, a journey—from *curro*, I run: It. *corso*]: a swift journey; a career; a race; the ground on which the race is run; generally a passing, moving, or motion forward within limits; the progress of anything; usual manner; order of procedure; way of life or conduct; natural bent; the dishes set on table at one time; elements of an art or science exhibited and explained in a series of lessons or lectures, as a course of chemistry; a continued range of stones or bricks in the wall of a building, of approximately uniform thickness; the track of a ship: V. to run through or over; to hunt; to chase; to move with speed. COUR'SING, imp.: N. the sport of chasing and hunting hares with grayhounds. COURSED, pp. *kōrst*. COUR'SER, n. *-sẽr*, a swift horse; a war horse; a very swift running bird inhabiting s. Europe and n. Africa. COUR'SES, n. plu. *-sĭs*, in a *ship*, the principal sails, the lower sails—comprising main-sail, fore-sail, main stay-sail, fore-staysail, and mizzen-staysail: above the courses is the group of top sails, and the highest of all the group of top-gallant sails: in *geol*, thin regular strata, from their being superimposed upon one another like the hewn courses of a building; the menses. OF COURSE, by consequence; that naturally follows, as, a *matter of course*. IN THE COURSE OF, at some time during.—SYN. of 'course, n.': road; way; passage; route; race; manner; method; succession; mode; series; progress; advance; track; direction; procedure; sequence; conduct; behavior; regularity.

COURS'ING: method of hunting hares by greyhounds, in which the dogs follow the game by *sight*, instead of by *scent*. C. is of very ancient date, having been practiced by the Greeks. Within the last 20 years, its popularity as a sport has greatly increased, and the breed of the greyhound is now studied in England with almost as much care and zest as that of the race-horse. The method is as follows:

Meetings are held in open districts, well frequented by hares, where the greyhounds—technically called 'dogs,' as foxhounds are technically called 'hounds'—are entered by their owners for a variety of stakes, which are to be competed for—C., in this respect, partaking of the nature of a race between horses. The first thing done is to select a judge to decide upon the merits of the best dogs; second, a 'slipper' is appointed to hold the dogs in leash, and start them at the hare; and, third, a flag-steward is chosen, who remains near the judge and announces the color of the victorious dog by means of a red or white flag, according as the competitors are arranged. The next thing done is to 'beat' the field for a hare. When one is found, the judge usually allows it 80 or 100 yards 'law' before he cries to the 'slipper' to let the dogs 'go.' Upon the word 'go,' the 'slipper' liberates the animals by a spring attached to the 'slips'—i.e., the long strong cord held by the 'slipper'

and communicating with the leathern collars fixed round the necks of the dogs. The judge's duties now begin in earnest. He follows the dogs wherever they go, calculating carefully the number of 'points' made by each—a 'point' being any meritorious achievement on the part of the dogs (as when the one outstrips the other at any time, or turns the hare, i.e., causes it to 'double'); and at last he adjudges the victory, not *necessarily* to the dog which has killed the hare, but to the one which has made the most points during the course, i.e., which has exhibited the finest qualities of speed, sagacity, endurance, etc.

COURT, n. *kōrt* [F. *cour*—from OF. *court;* It. *corte*—L. *cohortem*, a cattle-yard, an inclosed place: comp. Gael. *coir*, a circle or inclosure where justice was administered; allied to Polish *grod*, city; Sw. *gard;* Eng. *yard* and *garden*]: an open space of ground attached to a house inclosed by a wall or fence; a small paved square or space surrounded by houses; the palace of a king, also the persons attached to his person as attendants, council, etc.: a place of justice, likewise the judges and officers engaged there; civility; flattery; the art of pleasing: V. to endeavor to please; to woo or pay addresses to a woman; to solicit; to seek. COURT'ING, imp. COURTED, pp. *kōrt'ĕd.* COURT'SHIP, n. the act of soliciting favor; paying addresses or making love to a woman. COURT'IER, n. *-yĕr*, a man who attends at the courts of princes seeking for favors or advancement; one who flatters to please. COURTEOUS, a. *kĕrt'yŭs* [OF. *cortois*]: affable; polite; civil; obliging; of elegant manners. COURT'EOUSLY, ad. *-lĭ.* COURT'EOUSNESS, n. COURTLY, a. *kōrt lĭ*, elegant; refined; worthy of a court: AD. in the manner of a court. COURT'LINESS, n. *-nĕs.* COURTESAN, n. *kĕr'tĕ-zăn* [Sp. *cortesana*—from *corte*, court]: a woman of loose virtue. COURT-MARTIAL, n., a court of justice composed of military or naval officers for the trial of offenses committed in the army or navy. COURT-PLASTER, a black sticking-plaster—formerly used in patches on the face by ladies as ornaments or beauty-spots. COURT-YARD, an inclosed space before a house: see FARM BUILDINGS. COURT-CARDS [a corruption of *coat* or *coated card*]: pictured cards; in *card-playing*, king, queen, and knave of a suit. COURT-DAY, a day on which a court sits to administer justice. COURT-DRESS, a dress suitable for appearing at court, or a levee. COURT-LEET, *-lēt* [Dut. *laet*, a peasant tenant]: the court of the copyhold tenants, as opposed to the COURT-BARON for the freeholders of the baron; a court of record held within a lordship or manor for the disposal of minor offences: see COMMON LAW, COURTS OF. —COURT OF COMMON PLEAS: see COMMON LAW, COURTS OF.—SYN. of 'courteous': condescending; accessible; obliging; well-bred; complaisant.

COURT: originally, the square or space inclosed by the buildings of a feudal castle; hence, the persons immediately surrounding a feudal chief or superior. In this application it now denotes the residence and surroundings of sovereign princes. In England, and other free countries

'the court' means little more than the family and attendants of the sovereign, viewed not in a private but a public capacity. The bishops and nobles, the ministers of the Queen for the time being, and other persons entitled to precedence, either on hereditary, official, or personal grounds, are those who habitually encircle the sovereign; 'the court circle,' consequently, means those persons of distinction and their families, who are in the habit of approaching the Queen, and of associating with the other members of the royal family. But this circle is one the circumference of which is marked by no absolute line, like that which in France, under the old monarchy, divided the C. from the city.

COURT, in law: see COURTS OF JUSTICE (References).

COURT, *kôr*, ANTOINE: 1696, May 17—1760, June 15; b. Villeneuve de Berg, France: Prot. minister. His parents, humble peasants and stanch adherents of the persecuted Reformed Church, were unable to give him even an ordinary education, but brought him up to fear God and to study the Scriptures. When he was 8 years old the Camesard revolt was suppressed, and when 17 he began attending the secret meetings of the Protestants and exhorting the devoted congregations Two years later, Louis XIV issued a decree declaring that all who professed the Reformed faith should be punished as relapsed heretics. This proclamation, added to the long course of persecution by the govt , determined him to attempt to deliver the Protestants and build up their church. He began his labors by insisting upon the holding of regular meetings for religious instruction and worship; the suppression of the fanaticism of 'inspired teachers' and the disorders that it created; the restoration of ecclesiastical discipline through the establishment of consistories, conferences, and synods; and the systematic education of pastors. He formed congregations at Languedoc, Dauphiné, and Provence, organized the Church of the Desert, and, when a price was set on his head, fled from France to Lausuanne, 1730, where he founded a theological seminary of which he was pres. till his death.

COURT, PRESENTATION AT: personal introduction into the presence of a sovereign, with the ceremonial accompanying. This honor, obtained only by persons of respectable position, is sought not only for the *éclat* of the ceremonial, but as giving a certain stamp of character; for, having been received by the sovereign, a person may with justice expect to be received anywhere. Valuable so far as a credential, a reception at C. is carefully guarded from abuse. At the C. of Queen Victoria, there is scrupulous exclusion of all men or women of damaged reputation. Those who aim at the distinction of being presented at C. belong chiefly to what are called the higher circles—nobility and landed gentry; officers in the army, navy, and higher departments of the civil service; judges, magistrates, church-dignitaries, members of the learned professions; and the wives and daughters of these respective classes. Men of

scientific, literary, or artistic attainments do not generally attempt to appear at C.; neither do the classes engaged in trade. It is usual to be presented on taking office, or on attaining some personal dignity, or on arriving from an important and distant expedition. Young ladies of good family are said 'to come out,' on being presented at court. What perhaps contributes more than anything else to secure selectness, is the obligation of appearing in 'court-dress,' an expensive and fantastic costume of old date; from which only those who assume professional uniforms are exempted. As is well known, the court-dresses of ladies are superb. Some of the usual notions among foreigners arriving in England—those from the United States in particular—as to the practicability of indiscriminate presentation at C., are erroneous. It is the duty of the lord chamberlain at St. James's to furnish information regarding the steps to be adopted by those who desire to be presented at C., either at levées, which are restricted to gentlemen, or at drawing-rooms, which are chiefly, though not exclusively, for ladies. The days on which these receptions take place are advertised in the newspapers some days before, with necessary directions for preventing confusion. Her majesty's birthday is the occasion on which the greatest reception of the year takes place, but there are no new presentations on that day. Any British subject who has been presented at C. in England, can claim to be presented by the British ambassador at any foreign court. Those who wish to be mere spectators can obtain tickets to the corridor, where they see the company passing in and out, by applying to the lord chamberlain. For this purpose, however, an introduction is required. It is indispensable that the names of gentlemen desiring to be presented, and of the nobleman or gentleman who is to present them, be sent to the lord chamberlain's office several days previously, in order that they may be submitted for the queen's approbation. Gentlemen are also requested to bring with them two large cards, with their names clearly written upon them, one of which is left with the queen's page in the presence-chamber, and the other is delivered to the lord chamberlain, who announces the name to her majesty. The same rules apply to ladies. Lists of presentations appear next day in the principal London newspapers.

COURTALLUM, *kŏr-tâl-lŭm'*: town of the dist. of Tinnevelly, presidency of Madras; lat. 8° 56′ n., and long. 77° 20′ e., near the junction of the eastern and western Ghauts. Open toward the e., at a height of 700 ft. above the sea, it is elsewhere embosomed in hills, having, in its immediate neighborhood, a deep glen which affords easy communication between the opposite shores of Hindustan. The place is a favorite retreat for invalids, deservedly enjoying a reputation for salubrity of air, richness of vegetation, and beauty of scenery. The indigenous flora comprises 2,000 species; and many exotics, such as the nutmeg, clove, and cinnamon, have been introduced with success.

COURTESAN, n.: see under COURT.

COURTESY, n. *kėr'tĕ-sĭ* [from *court:* F. *courtiser,* to pay court to, to flatter; *courtoisie,* civility]: the polish and polite manners of the court; politeness of manners combined with kindness; civility; an act of civility or respect; favor not by right. COURTESY, n. *kėrt'sĭ,* an act of respect or reverence paid by a woman: V. to perform an act of respect, etc., as a woman. COURTESYING, imp. or *kėrt'sĭ-ing.* COURTESIED, pp. *kėrt'sĭd.*—SYN. of 'courtesy = *kėr'tĕ-sĭ*': politeness; urbanity; complaisance; civility; elegance, etc.

COUR'TESY, or CURTESY, in Law: life interest which, in England and Scotland; the surviving husband has in the real or heritable estate of the wife. It is remarkable that, both in England and in Scotland, this customary right should be regarded as a national peculiarity—that in England it should be called the C. of England, and in Scotland the C of Scotland—whereas it is well known to be peculiar to neither of them. Traces of it are to be found in a constitution of the emperor Constanstine (Code 6, 60, 1); and there can be no doubt that it has found a place, with all the peculiarities which now belong to it, in the *coutume* of Normandy. The four circumstances which are requisite to make a tenancy by C. in England are—marriage, seizin of the wife, living issue (living at time of birth), and the wife's death. In both countries, the child must be the mother's heir; and it is consequently said that C. is due to the surviving husband rather as the father of an heir than as the widower of an heiress. See SETTLED ESTATE, for English law on one point; for Scottish law, see Hunter on Landlord and Tenant, i. p. 119.

COUR'TESY TITLES: titles assumed by or given to individuals, and which have no validity in law, not having been imparted by the sovereign or other competent authority. The term C. T. is best known in connection with the titles given by popular consent to the sons and daughters of certain English peers. C. T. are to foreigners a perplexing part of the highly artificial social system which prevails in Britain. English dukes, marquises, earls, and viscounts have several titles, accumulated by distinct patents in their progressive steps in the peerage. Thus, a duke may at the same time be a marquis, an earl, a baron, and a baronet; a marquis may be also an earl, etc.; and an earl is almost always a baron. In ordinary parlance, they respectively take only their highest title. One of the inferior titles so set aside is permitted, as a matter of social dignity, to be assumed by the eldest son. For example, the Duke of Bedford being also Marquis of Tavistock, his eldest son takes the title of Marquis of Tavistock; and the Duke of Buccleuch and Queensberry being also Earl of Dalkeith, his eldest son takes the title of Earl of Dalkeith: such titles are of the class called courtesy titles. When it happens that the inferior title is of the same name as the first, there is a somewhat different usage. For example, the Earl of Gosford being also Vis-

count Gosford, his eldest son, to prevent confusion, takes only the family surname, Acheson, with the prefix Lord—Lord Acheson. The youngest sons of dukes and marquises have the courtesy title of Lord prefixed to their Christian and surname: as, for example, lord Frederick Charles Cavendish, a younger son of the Duke of Devonshire; or Lord Archibald Campbell, a younger son of the Duke of Argyll. The eldest son of an earl, when not a viscount, takes his father's second title of lord: as, for example, the eldest son of the Earl of Wemyss is styled Lord Elcho. It is to be kept in mind, that titles by courtesy do not raise their bearers above the rank of commoners; that, consequently, they are eligible for election as representatives to the house of commons. Very many of the peers, indeed, begin their political career as county or borough representatives under their C. T., serving in this way a kind of apprenticeship as statesmen before they are advanced, by the decease of their fathers, to the house of lords.

The daughters of dukes, marquises, and earls have the title Lady prefixed to their Christian and surname; and in the event of their marrying a person of inferior rank, they retain the title Lady with their Christian name, adding the surname of their husband. Yet, these are but courtesy titles The only valid title that they can claim in virtue of their birth, is the prefix Honorable, which is applicable alike to the sons and daughters of peers. The wives of baronets receive the courtesy title of Lady; their lawful designation being Dame. Ladies who have had a title by a first marriage, retain it as a matter of courtesy when they are married a second time, though the alliance be with a person without a title—a circumstance sometimes leading to awkwardness in designation. In Scotland, the eldest son of a baron has the courtesy title of Master. For example, the eldest son of Lord Elibank is styled Master of Elibank.

The title Right Honorable is given in some few instances by courtesy to officials, as in the case of the Lord Advocate for Scotland. The judges of the court of session in Scotland, on first taking their seat on the bench, assume the courtesy title of Lord with their own surname or a territorial title. But such titles are used only senatorially. In writing, the real name is subscribed. The titles of Mr. or Master and Esquire (q. v.), are now given by courtesy to nearly all classes of persons. For an exact definition of titles by courtesy of members of the peerage, see the *Handbook to the Desk*, or any good *Letter-writer*.

COURT'-FOOL: jester formerly kept for entertainment in courts of sovereigns and houses of the nobility. From very ancient times there was a class of persons whose business it was to while away the time of the noble and wealthy, particularly at table, by all manner of jests and witty sayings. Alexander the Great, Dionysius of Syracuse, Augustus and his successors, maintained such jesters. It was, however, during the middle ages that this singular and repulsive vocation became fully developed, and that the

office of jester or fool became a regular and indispensable court office. The symbols of such a personage were—the shaven head; the fool's cap of gay colors, with asses' ears and cock's comb; the fool's sceptre, which was variously formed; the bells, which were mostly attached to the cap, but likewise to other parts of the dress; and a large collar. The rest of the costume was regulated by the taste of the master. Of these professional fools some obtained a historical reputation, as Triboulet, jester to King Francis I. of France, and his successor, Brusquet; Klaus Narr, at the court of the elector Frederic the Wise of Prussia, whose jests have been repeatedly printed; and Scogan, court-fool to Edward IV. of England. The kings and regents in Scotland had their jesters, as was usual in their time; and the sarcastic sayings of some of these privileged personages—such as those of Patrick Bonny, jester to Regent Morton—are still remembered among the national *facetiæ*. English court-jesters died out with the Stuarts; one of the last of the race being the famous

Court-fool and Buffoon.
From Harleian MS. fourteen century.

Archie Armstrong, whose death, 1646, took place characteristically, on April 1. Besides the regular fools recognized and dressed as such, there was a higher class, called merry councilors, generally men of talent, who availed themselves of the privilege of free speech, to ridicule in the most merciless fashion the follies and vices of their contemporaries. Of these, Kunz von der Rosen, jester to the Emperor Maximilian I.; John Heywood, a prolific

dramatic poet and epigrammatist at the court of Henry VIII.; and Angely, a French courtier, were particularly distinguished for talent and wit. In all times there existed at courts persons who, without becoming jesters by profession, were allowed the privilege of castigating the company by their witty and satirical attacks, or who served as the general butts. Among these were, on the one hand, the Saxon general Kyau, celebrated for his blunt jests; and on the other, the learned Jacob Paul, Baron Gundling, whom Frederic William I. of Prussia, to show his contempt for science and the artificial court system, loaded with titles. Flögel's and Nick's German treatises on this subject, and Dr. Doran's *History of Court Fools*, are interesting works. Such a history forms a kind of barometer of the manners and morals of courts at different times. At a later period, imbecile or weak-minded persons were kept for the entertainment of the company. Even ordinary noblemen considered such an attendant indispensable; and thus the system reached its last stage, and toward the end of the 17th and beginning of the 18th c., was finally abolished. It survived longest in Russia, where Peter the Great had so many fools that he divided them into distinct classes.

COURT'-HAND: name given in England to the old Gothic or Saxon handwriting, as distinguished from the modern or Italian handwriting. The old way of writing continued in the law-courts after it had been superseded elsewhere, and hence its name of Court-hand.

COURT-JEWS: Agents of Austrian and German rulers in the 17th, 18th and 19th c., who, by reason of their wealth and business ability, were found useful to royalty. In peace and war they enjoyed special privileges, were treasurers and contractors for the army and state. They were free from the harassing restrictions that others Jews endured, wore no Jew badge (q.v.), could live where they pleased, perform their religious duties without hindrance, etc. Jacob Bassevi, for instance, was such a favorite at the Austrian court, where there were many of his class, that he was the first Jew to be ennobled. At all the petty German courts, as well as in many of the more pretentious dynasties, their services were indispensable, although they were often the centre of intrigue that boded no good to them or their less favored brethren. Probably the most influential were Samson Wertheimer of Vienna, Leffman Behrends of Hanover, Israel Jacobson of Brunswick, and Wolf Breidenbach of Hesse; with the two last the office ended.

COURTMANS, *koor-mäṅ*, Joanna Desideria Berchmans, Flemish poet and novelist: b. Oudegem, East Flanders, 1811, Sept. 6; d. Maldegem, 1899, Sept. 6. She was married in 1836. Besides dramas and poems, she wrote 22 volumes of stories. She excelled particularly in her descriptions of the life of the common people. The most notable of her tales are: *The Hunter's Gift; Dame Daneel; The Cowherd; Aunt Clara's Bonnet.*

COURT-MAR'TIAL: court for the trial of any one belonging to the army or navy, for some breach of military or naval law. The members of the court fill the functions both of judge and jury. Courts-martial are *general, district* or *garrison,* and *regimental.* The first is the only one of the three empowered to award death as a punishment. In the U. S. army it consists of not less than 13 commissioned officers of proper rank; and a deputy judge-advocate is specially appointed to conduct the prosecution: it can be convened only by order of the president, or the general of the army, or an officer in command of a department. A non-commissioned officer, or a private, may be tried by any one of the three kinds of court; but a commissioned officer only by a general court-martial. A *district* or *garrison* court-martial may be convened by a field-officer commanding, and consists of not less than three commissioned officers, with an officer not lower than a captain to act as judge-advocate: it tries lower officers (non-commissioned, etc.) and the rank and file. A *regimental* court-martial may be convened by the commanding officer of a regiment or detachment; it consists of not less than three commissioned officers; it treats of minor offenses, and can award only minor punishments.

In all these kinds of court-martial, the members are sworn in; the court is an open or public one; the vote or sentence is decided by majority, the junior members voting first; but two-thirds of the whole number, in a general court-martial are necessary to give validity to a sentence of death. Before execution, the sentence of every military court-martial has to be approved and confirmed by the convening authority.

Sometimes *Courts of Inquiry* are held instead of a court-martial, not to try or to punish, but to make an investigation; the members not being on oath. Such a court occasionally precedes a court-martial.

Naval courts-martial consist of higher officers, and can be convened only on the order of the president, or the sec. of the navy, or the commander of a fleet,—or, if outside of U. S. jurisdiction, by the commander of a squadron. The court-martial is open to all the crew and others as spectators.

COURTNEY, *koort'nĭ,* William Leonard, English author: b. Poona, India, 1850, Jan. 5. He was educated at Oxford, became editor of the *Fortnightly Review* in 1894 and has served on the editorial staff of the *Daily Telegraph.* He has published: *The Metaphysics of John Stuart Mill* (1879); *Studies on Philosophy* (1882); *Constructive Ethics* (1886); *Studies New and Old* (1888); *Life of John Stuart Mill* (1889); *Kit Marlowe,* a play (1893); *The Idea of Tragedy* (1900); *Undine* (1902).

COURT OF LOVE, in the age of chivalry: assembly of high-born women, in the age of chivalry, who decided questions of courtesy, etiquette, or love according to a rigid code of 31 articles. It was established in Provence, France, in the best days of the troubadours; and after its

dissolution, René, king of Anjou, and Cardinal Richelieu attempted in vain to restore it. Among the celebrated women who presided over it were Countess de Die and Laura de Sade. The following specimen of the questions submitted to it for decision has been preserved: A lady listened to one admirer, squeezed the hand of another, and touched with her toe the foot of a third. Query, which of the three was the favored suitor.

COURT OF SES'SION: highest civil tribunal in Scotland: instituted in the reign of King James V., by statute, 1532, May 17. The object of its institution was to discharge the judicial functions which originally belonged to the king and his council, and which, since 1425, had in a great measure devolved on a committee of parliament, as the great council of the nation. The Court of Session consisted at first of 14 ordinary judges and a president. One-half of these judges and the president were churchmen, and the practice of appointing ecclesiastics to the bench did not cease for some time, even after the Reformation. In 1830, the number of judges was reduced to 13, and that is still the full number, though since 1877 there have actually been but 12 judges. Of the five lords ordinary, junior judges appointed to sit as an outer house, four only sit daily. The judgments of the outer house, with a few statutory exceptions, are appealable to the Inner House. The youngest judge, or junior lord ordinary, officiates in a separate department of the outer house, called the bill chamber (q.v.), where summary petitions, and other branches of business peculiarly requiring dispatch, are disposed of. In cases of great difficulty, the lords ordinary are called in, and a hearing before the whole court, or *in presence*, as it is called, takes place, with the lord president presiding. The judges are appointed by the crown, and hold their offices for life. With few exceptions, the judgments of the inferior courts of Scotland are reviewable by the Court of Session, but this rule does not apply to the small-debt courts. The judgments of the Court of Session may be appealed to the house lords within two years.

COURTOIS, Bernard, *bâr-när*, *koor-twä*, French chemist: b. Dijon, 1777; d. Paris, 1838, Sept. 27. He was trained in pharmacy, and entered Fourcroy's laboratory in the École Polytechnique. He had to join the army in 1799, but after his discharge resumed his chemical work with Thénard and Séguin. In conjunction with the latter he discovered morphine in opium, but nothing was published on the subject till Séquin's paper long after, and Courtois' share has consequently been overlooked. In 1804 he began work on nitrate of sodium, the process consisting in decomposing nitrate of calcium by the carbonate of sodium obtained from kelp. He observed that the iron vessels were corroded if the liquors from which the sodium salts had been crystallized were kept in them for a time. Investigating this, he found that on distilling the liquors with sulphuric acid a body with a splendid purple vapor

was liberated. He examined it and ascertained some of its properties, but ultimately resigned the investigation to Gay Lussac. This was the first discovery of iodine. In 1815 his nitre manufacture was ruined, and thereafter he had a precarious livelihood by making various chemical products.

COURTRAI, *kôr-trā'* (Flemish *Kortryk*): town of Belgium, province of West Flanders, about 30 m. s. of Bruges; lat. 50° 49′ n., long. 3° 18′ e. It is built on both sides of the Lys, is surrounded with walls, and has a castle, a citadel, a fine old bridge flanked with Flemish towers, a noble town hall, and a beautiful Gothic church, founded 1238 by Baldwin, Count of Flanders. Though a busy manufacturing place Courtrai is very clean. Table damask and other linen are principal articles of manufacture. There are extensive bleaching-grounds in the vicinity, and the neighboring plains supply fine flax in large quantities to many European markets. In 1302 the Flemings, citizens of Ghent and Bruges chiefly, won a splendid victory over the chivalry of France beneath the walls of Courtrai, more than 700 gilt spurs (worn only by French nobles) being afterwards gathered from the dead by the victors. The battle was hence named Battle of the Spurs. Pop. (1901) 33,495.

COURTS OF JUSTICE: see JUDICIARY IN THE UNITED STATES. COMMON LAW, COURTS OF. ADMIRALTY COURT; ADMIRALTY JURISDICTION; COUNTY COURTS; COURT OF SESSION; CHANCERY, COURT OF; CHANCELLOR, LORD; EQUITY; JUDGE; ATTORNEY; ADVOCATE; BARRISTER; CHILDREN'S COURT.

COUS-COUS, n. *kôs'kôs:* a favorite dish in western Africa, composed of millet-flour, flesh, and the leaves of the baobab; called also lalo.

COUSEOUS, or CUSEUS, see PHALANGER.

COUSIN, n. *kŭz'n* [F. *cousin*—from OF. *cosin;* prov. F. *cusrin*—from mid. L. *cosīnus*, a corruption of L. *consobrīnus*, a cousin-germ̃an]: any relation more distant than a brother or sister, the son or daughter of an uncle or aunt; title of address used by a king to his nobles. COUS'INLY, a. *-lĭ*, having the relation of cousins: AD. becoming a cousin. COUSINS-GERMAN, the children of brothers or sisters.

COUSIN, *kô-zăng'*, VICTOR: 1792, Nov. 28—1867; b. Paris: founder of systematic eclecticism in modern philosophy. He studied with brilliant success at the *Lycée Charlemagne.* In 1812 he was appointed Greek tutor in the *École Normale*, and in 1814, Examiner in Philosophy. In the following year he became assist. prof. to Royer-Collard at the Sorbonne, and threw himself heartily into that reaction against the sensualistic philosophy and literature of the 18th c. then in vogue. Following the path of his senior, he became an exponent of the doctrines of the Scotch metaphysicians, but exhibited far more brilliancy, energy, and warmth of expression than the original authors of these doctrines. In 1817, Cousin

visited Germany, where he was introduced to bolder and more speculative systems of philosophy than any that he had yet known. He studied successively, or at the same time, Plato, Kant, Jacobi, Fichte, and Schelling. A second visit to Germany, 1824–5, also had important consequences. Suspected of carbonarism, he was arrested at Dresden by the police and sent to Berlin, where he was detained six months. He took advantage of his compulsory residence in the capital of Prussia to study the philosophy of Hegel. On his return to France, he took a decided stand against the reactionary policy of Charles X.; and in 1827, when the comparatively liberal ministry of Martignac came into office Cousin, who had for some years been suspended from his professorial functions, was reinstated in his chair. During 1820–27, he published his editions of Proclus and Descartes, and part of his celebrated translation of Plato, finished 1840. The year 1828 witnessed the most splendid triumph in the career of Cousin as a philosophic teacher. It is said that to find an audience as numerous, and as passionately interested in the topics discussed, as gathered round Cousin, it would be necessary to go back to the days of Abelard and other mediæval teachers of philosophy. Cousin was still young, simple, and pure in his habits; his doctrines were for the most part new to his hearers, bold, and in harmony with the spirit of the time. The finest qualities of the national genius appeared in his lectures, a wonderful lucidity of exposition, an exquisite beauty of style such as no modern or ancient philosopher, except Plato, has equalled; a brilliancy of generalization and criticism that enchanted every one; and a power of co-ordinating the facts of history and philosophy in such a manner as to make each illustrate the other and reveal their most intricate relations. At this period, Cousin was one of the most influential leaders of opinion among the educated classes in Paris; and consequently, after the revolution of 1830, when his friend Guizot became prime-minister, Cousin was made a member of the Council of Public Instruction; in 1832, a peer of France; and later director of the *Ecole Normale*. His efforts for the organization of primary instruction are seen in those valuable reports which he drew up, from personal observation, on the state of public education in Germany and Holland. In 1840, he was elected a member of the *Académie des Sciences Morales et Politiques*, and in the same year became minister of Public Instruction in the cabinet of Thiers. The revolution of 1848 found in Cousin a friend rather than an enemy. He aided the government of Cavaignac, and published an anti-socialistic brochure, called *Justice et Charité*. After 1849, he disappeared from public life.

It is more easy to state what philosophical doctrines have received exposition at the hands of Cousin than to determine precisely what are his own. At first a disciple of Maine de Biran, Royer-Collard and the Scotch school, he was attached to the psychological method of investigation; later he came under the influence of Kant and Fichte;

he next shows strongly the influence of the Romantic school and of Schelling and Hegel. At the period (1818–1828) when he reached the zenith of his influence as a lecturer, Cousin might be not unfairly described as an æsthetic pantheist. After 1830 he became an administrator and politician, and then compromised with his theological opponents, watering down his philosophy where necessary. (cf. *Du Vrai, Du Beau et du Bien* 1845). See ECLECTICISM. Cousin's chief works (besides those already mentioned) are *Fragmens Philosophiques* (1826 and many later editions), *Philosophie Ecossaise, Philosophie de Locke, Philosophie de Kant, Cours de l'Histoire de la Philosophie* (first edition, 1827) *Coūrs de l'Histoire de la Philosophia Morale au XVIII Siecle* (1841). He published a translation of Plato's works and editions of Proclus, Abelard, Des Cartes and Maine de Biran.

COUS'INS, FIRST: see MARRIAGE.

COUSTOU, *kôs-tô'*, NICOLAS: 1658–1733; b. Lyons, France: painter and sculptor. He was the son of a wood-carver, studied in Paris with Coysevox, his uncle and pres. of the Acad. of Painting and Sculpture; gained the Colbert prize, spent four years in the French Acad. in Rome, and became chancellor of the Acad. of Painting and Sculpture. His works include a group of the descent from the cross, in the church of Notre Dame, Paris, two colossal statutes of the junction of the Seine and the Marne and of the Berger chasseur, in the Tuileries garden; and a number of statues in Versailles and Marly.

COUTHON, *kô-tōng'*, GEORGES: 1756—1794, July 28; b. Orsay, near Clermont, in Auvergne: fanatic of the French Revolution. At the outbreak of the Revolution, he was engaged as an advocate, and in 1790 was elected pres. of the Tribunal for the district of Clermont. In 1791, he was sent by his fellow-citizens to the National Convention, where he made himself conspicuous by his furious hatred of the court, the priesthood, and the monarchy. In spite of an infirmity which prevented him using his limbs, Couthon soon gained much influence from the rabid violence of his sentiments. He voted for the death of the king without delay or appeal to the country, and (after a brief relapse into moderatism) became a devoted and bloodthirsty partisan of Robespierre. In 1793, July, he was appointed a member of the *Comité de Salut Public*, and with Châteauneuf-Randon and Maignet, was sent against the Lyonnese insurgents. After some opposition, the city was taken, when a multitude of the citizens were put to death. On his return to the Convention, he became quite maniacal, demanding the 'impeachment' of all the kings of the earth, and voting for Pitt being declared 'the enemy of the human race,' and the English nation a 'traitor to humanity.' The fall of Robespierre brought down Couthon also. Accused by Fréron, he was thrown into prison, delivered by the mob with whom he was popular, recaptured by the soldiers of the Convention, and put to death with St. Just and Robespierre.

COUTRAS, *kô-trâ':* town of France, dept. of Gironde, on the left bank of the Dronne, about 26 m. n. e. of Bordeaux. C. has a considerable trade in flour, and the district produces red wine; but the place is known principally on account of the bloody victory gained here (1587) by Henry of Navarre over the forces of the League. In this battle the Duc de Joyeuse, commander of the Leaguers, was slain, as well as many other great noblemen on the same side. Pop. 2,500.

COUTURE, *kô-tür'*, THOMAS: 1815, Dec. 21—1879, Mar. 31; b. Seulis, France: painter. He studied under Gros and Delaroche, developed a style of his own, distinguished by unusual richness of color and free handling, and began exhibiting 1840 with *Jeune Venètien après une orgie.* He subsequently exhibited *L'Amour d'or* (1844); *Romains de la decadence* (1847), which gained him a first-class medal and the cross of the legion of honor; *Trouvère; Fauconnier;* and the military pieces *Return of Troops from the Crimea,* and *Enrollment of Volunteers.* He published an art essay *Entretiens d'atelier* (1867).

COUVRE-PIED, n. *kôv'ėr-pĕ-ā'* or *-pĭ-ĕd'* [F., a coverlet —from *couvrir,* to cover; *pied,* a foot]: a cover for the feet when lying down on a couch or sofa. COUVRETTE, n. *kôv-rĕt',* little covers placed on the backs of chairs or sofas.

COVE, n. *kōv* [Icel. *kofi,* a hut: AS. *cófa,* a chamber: L. *cavus,* hollow: Sp. *cueva,* a cave: Port. *cova,* a hole, a ditch]: a small inlet or recess in the sea-shore where boats may find shelter; a creek or small bay; a nook: V. to arch over. CO'VING, imp. COVED, pp. *kōvd:* ADJ. arched over: see ALCOVE.

COVE, n. *kōv* [OE. *cofe:* Gael. *comh,* a prefix denoting equality or fellowship, and *coe,* an odd old fellow]: in *slang,* a person; a fellow.

COVELLINE, n. *ko-vĕl'līn,* or COVEL'LITE, n. *-līt:* mineral found in various parts of the European continent and North and South America. There are two varieties, cantonite and alisonite.

COVENANT, n. *kŭv'ĕ-nănt* [F. *convenant,* a contract: L. *conventum,* an agreement—from L. *con, vĕnĭo,* I come: comp. Gael. *cumhnant* = *cúvnănt,* a covenant]: a solemn league; mutual consent or agreement: in *law,* a written agreement between parties to do or not to do some act or thing; a stipulation:—it may be in a variety of forms, no particular form being requisite in law, and may refer to all kinds of agreements, and is enforcible at law in a variety of ways; it may even be implied: see CONTRACT: CONSENT: V. to enter into a formal agreement; to contract. COV'ENANTING, imp. COV'ENANTED, pp.: ADJ. in the old *Indian Civil Service,* denoting the covenant or engagement entered into between an individual and the company on entering their service, as opposed to the *uncovenanted service*—that is, the service not subject to such a formal engagement. COVENANTER, n. *kŭv'ĕ-năn-tėr,* one who joined in the Solemn League and Covenant in Scotland in the reigns of

Charles I. and II.: see COVENANTS, THE: CAMERONIANS: REFORMED PRESBYTERIANS. — SYN. of 'covenant, n.': agreement; contract; compact; bargain; stipulation; arrangement.

COVENANT, in Theology: a contract between God and Man; or more accurately in some of the cases adduced, a relation constituted by God between Himself and men. The term is nearly, if not exactly, equivalent to the Hebrew *berith* of the Old Test. and the Greek *diathēkē* of the New. Applied to relations established between God and men, the term C. must be understood with a certain modification of the meaning which it bears when employed concerning the relations of men to one another, when two independent parties enter into a C., which they have equal right to make or to refuse to make: thus, it is sometimes employed as equivalent to *dispensation*, and the Jewish dispensation is called the *Old* C. (or *testament*, by another translation of *diathēkē*), in contradistinction to the Christian, which is called the *New*. God, in his supremacy, is regarded as appointing certain conditions for his creatures, which they cannot but accept, yet their willing consent to these conditions gives to the relation established the nature of a C.; and thus God is commonly said to have made two covenants with man: the *first C.*, or *C. of Works*, with Adam, as the representative of the whole human race, promising life (with perfect happiness), upon condition of perfect obedience, while death was threatened as the penalty of transgression; the *second C.*, or *C. of Grace*, being that on which depend the whole hope and salvation of man, since the first C. was broken, and in which life is freely offered to sinners, and they are simply required to believe in Jesus Christ that they may be saved. This C. God is regarded as having made with Christ, as the representative of his people, and with them in him. The older theologians often speak of the *C. of Redemption* between God and Christ, employing the term *C. of Grace* rather to designate the whole dealings of God with men in giving effect to the C. of Redemption; but the term *C. of Grace* has long been almost universally employed to include all that was comprehended under both terms. The *Abrahamic C.* is the C. of Grace as declared to Abraham, in its particular relation to him and his seed. God is represented in Scripture as sustaining a *C relation* to his *own people*, to the Jews under the Old C., to believers in Christ under the New; and doctrinal theology consists not a little in tracing out the nature of this relation, and the consequences which flow from it. It is seriously questioned by many devout Christian people whether philosophical subtlety has not been used by a school of theologians in pressing the doctrine of the covenants into lines and to an extent not warranted in Scripture—thus giving to the system of Divine grace a character formal and mechanical rather than vital and spiritual. Whatever questions of this sort may arise concerning the historic reality of the C. of works with Adam for man, or the C. of grace between the Father and the Son, it may be said that at least the Abrahamic C. is clearly revealed in Scripture, and is traceable through

all subsequent history, and—as transfigured in the Gospel through Christ—is operative even to the present day, as the constitutive principle of the whole historic church in the world. As the people of God collectively sustain a C. relation to him, so do believers individually; and it has not been an uncommon thing for pious persons to endeavor to reduce to writing their sense of this '*C. obligation*,' under the notion of a *personal covenanting* with God; and of binding themselves by a stronger obligation to what they believed to be good and their duty. It has also been common for men, from the earliest ages, to enter into covenants with one another with more or less of religious solemnity; and this has in particular been done among those who have suffered persecution, or have been engaged in contests concerning matters of religion, for which the authority of certain passages of the Old Testament is strongly pleaded. Instances occur in the history of the Waldenses, and of some of the Reformed churches, particularly in the history of the Reformation in Scotland. But the most memorable covenants in Scottish ecclesiastical history belong to a period subsequent to the Reformation.

COVENANTS, The: in Scottish history and tradition: chiefly two—the National Covenant, and the Solemn League and Covenant. It is necessary to discriminate between these.

National Covenant.—This was a bond of union or agreement, drawn up at Edinburgh, 1638, by the leading Presb. ministers, and subscribed by vast numbers of persons of all ranks of life. It embodied the Confession of Faith of 1580 and 1581, subscribed by James VI. in his youth, and again recognized in 1590 and '96; and was binding on all who signed it to spare nothing which might save their religion. The proximate cause of this extraordinary manifestation of feeling was the attempt of Charles I. to enforce Episcopacy and the use of the Service-book in Scotland. The subscribing of the National Covenant began 1638, Feb. 28, in the Greyfriars' church and churchyard, at Edinburgh. Numerous copies also were circulated through the country for signature, which accounts for many copies being still extant. 'In the library of the Faculty of Advocates at Edinburgh are preserved five parchment copies, with the original signatures of Rothes, Montrose, Loudon, and many others of the nobility, gentry, commissioners of counties and burghs, and ministers, though only one of these five copies is apparently connected with the first signing, and the other four, dated 1639, were subscribed after the ratification by the General Assembly.' The General Assembly, which met at Glasgow, 1638, Nov. 21, ratified the National Covenant and the Confession of Faith which it embraced, and deposed the whole of the hierarchy which had been established by Charles I. The National Covenant was subsequently ratified by the 5th act of the second parliament of Charles I., at Edinburgh, 1640, June 11, and subscribed by Charles II. at Spey, 1650, June 23, and Scoon, 1651, Jan. 1. The document is in the volume which comprehends the *Westminster Confession of Faith*, in use by the Church

of Scotland. (For further information, see ASSEMBLY OF DIVINES: CREEDS AND CONFESSIONS· SCOTLAND: SCOTLAND, CHURCH OF: CHARLES I.: and other titles.) Those who subscribe the National Covenant promise to 'continue in obedience of the doctrine and discipline of this kirk.' They also give assent to various acts of parliament in the reign of James VI., which, besides repudiating the jurisdiction of the pope, and all the ceremonial observances and errors of the Roman Church, ordain 'all sayers, wilful hearers, and concealers of the mass, the maintainers and resettors of the priests, Jesuits, trafficking Papists, to be punished without any exception or restriction.'

SOLEMN LEAGUE AND COVENANT.—This was a document of date four to five years later than the National Covenant, since the signing of which Charles I. had broken with the English parliament, set up his standard at Nottingham (1642, Aug.), and from his various successes was thought to be gathering strength finally to reinstate Episcopacy in Scotland. With some alarm on this ground, the Scotch willingly received overtures from commissioners deputed from the English parliament. Some hopes were held out to the Scottish nation that in the event of success against the king, the Presbyterian model should supersede the Episcopalian both in England and Ireland. Approving of a measure of this kind, the Scottish Estates entered into what was called a Solemn League and Covenant with the English parliament. One of the provisions of the bond of agreement was that the Scotch should send an army into England against the king, which they did, 1644, January.

The Solemn League and Covenant was subscribed by many of all ranks in Scotland and England, including the assembly of divines at Westminster, was ratified by the general assembly at Edinburgh, 1643, Aug. 17, and the Scottish parliament, 1644, July 15, and subscribed by Charles II. at Spey, 1650, and Scoon, 1651. Like the National Covenant, it has till the present day, a place in the volume which comprehends the *Westminster Confession of Faith* of the Church of Scotland. While the National Convenant refers to the observance of the Presb. polity within Scotland alone, the Solemn League and Covenant is much more comprehensive. Those who subscribe it, setting out with a profession of attachment to the Church of Scotland, are to endeavor to bring about a uniformity in religion and church discipline in the three kingdoms; and further—'That we shall in like manner, without respect of persons, endeavor the extirpation of popery, prelacy (that is, church government by archbishops, bishops, their chancellors, and commissaries, deans, deans and chapters, archdeacons, and all other ecclesiastical officers depending on that hierarchy), superstition, heresy, schism, profaneness, and whatsoever shall be found to be contrary to sound doctrine and the power of godliness, lest we partake in other men's sins, and thereby be in danger to receive of their plagues; and that the Lord may be one, and his name one, in the three kingdoms.'

Such were the famous covenants, at one time enforced

by civil penalties, and for which their adherents, under the name of Covenanters, fought and suffered in Scotland, between the restoration and revolution, maintaining to the last that both covenants, notwithstanding certain rescissory acts of parliament, were still binding on the whole nation. At the revolution, the two covenants were set aside, and cannot be said to have now any practical effect in any part of the United Kingdom. As above stated, they have a place in the volume which comprehends the *Westminster Confession of Faith*, but for what reason, other than one of historical interest, it is difficult to say; for the Church of Scotland does not make adherence to them obligatory on either clerical or lay members. Certain Scottish and Irish dissenters, however, still profess attachment to the covenants, and on particular occasions renew their subscription of them: see CAMERONIANS. The obligations undertaken by the sovereign, and the modern acts of parliament abolishing religious tests on taking civil office, and admitting Rom. Catholics, Nonconformists, and Jews to parliament, not to speak of public opinion, are totally at variance with the covenants. It is customary in popular lectures on the covenanters to overlook the fact, in compassion for their sufferings, that they contended for what is now quite adverse to the principles of religious toleration. Yet, so far as the manful struggle in which they were concerned helped to accelerate the revolution, the history of the covenanters must ever be associated with that of civil and religious liberty.

COVENT GARDEN, *kŭv'ĕnt gâr'dĕn* (properly *Convent Garden*, orginally the garden of Westminster Abbey): a square in London noted for its great market of fruit, vegetables, and flowers. In the 17th c., C. G. was a very fashionable quarter of the town—the residence of many eminent persons. The scene of one of Dryden's plays is laid here, and frequent allusions are made to the place in plays of Charles II.'s time. The market, now so famous, appears to have originated about 1656 in a few wooden sheds and stalls. C. G. is for a stranger one of the sights of London, and is seen to greatest advantage about three o'clock on a summer morning; Tuesday, Thursday, and Saturday being the principal days.

COVENTRY, *kŭv'ĕn-trĭ:* town of C. township, Kent co. R. I., on an arm of the Pawtuxet river, and the New York and New England railroad, 18 m. s.w. of Providence. Its industries embrace the manufacture of calico and cotton prints, muslin de laines, and a variety of cotton and other machinery. Pop. 5,000.

COVENTRY (convent town): city, parliamentary and municipal borough, and manufacturing town in the n. of Warwickshire, on the Sherbourne, an affluent of the Avon, 18½ m. e.s.e. of Birmingham. Pop. munic. bor. (1871) 37,670; (1901) 68,877. It stands on a gentle eminence in a valley, with a ridge of hill on the s., and contains many old houses, with timbered fronts, projecting into narrow streets, and belonging to the 15th and 16th c. The mod-

ern part of C., however, is well, thought not regularly, built. The chief buildings are the churches, with imposing spires. St. Michael's church, built 1313–95, is said to be the largest parish church in England, and is one of the noblest of the lighter Gothic structures. St. Mary's Hall, built 1450, for the Guild, is one of the finest specimens of ornamental work in England, with grotesque carved oak roof, ancient tapestry, and great painted window. In the market-place formerly stood a rich hexagonal Gothic cross, 57 ft. high, erected in the 16th c., in three stories, with exquisitely finished pillars, pinnacles, and niches, with statues of English kings and saints. Before the year 1760, the cross had fallen to decay, and in 1771, the remains of it were taken down and removed. The ancient walls, three miles in circuit round C., were demolished by Charles II. C. returns two members to parliament. The chief manufactures are ribbons and watches. There are large silk-dying works. C. is nearly in the centre, between the four great English ports, London, Bristol, Liverpool, and Hull, and has extensive canal communication with other parts of the country. It is a very ancient place. In 1044, Earl Leofric and his wife, Lady Godiva, founded here a magnificent Benedictine monastery. In memory of Godiva (q.v.), curious and splendid processions were formerly held in C. In the 15th c., religious mysteries or plays were often acted here by the Grey Friars before kings. Henry VIII. demolished the beautiful cathedral of C. Here occurred the famous meeting for the intended trial by battle between the Dukes of Norfolk and Herefore, immortalized in Shakspeare's *Richard II.* Two memorable parliaments were also held in the monastery of C. in the 15th c. The one contained no lawyers, while the other passed attainders against the Duke of York, etc. In the 15th, 16th, and 17th c., C. was famous for woolens, broadcloths, caps, and blue thread bonnets. The Lammas land lying around C., and comprising about 1,100 acres, was not long ago divided between the proprietors and the freemen, numbering about 4,000, in the proportion of about two-thirds to the former, and one-third to the latter, C. was visited by the plague six times between 1350 and 1625. The phrase, 'to send to Coventry,' meaning to shut out from social intercourse, took its rise probably from the derivation of the name C., and meant 'to send to a convent,' i e., to shut out from society; though it is traced by some to the ancient dislike of the people of C. to soldiers and the refusal social intercourse to troops sent thither.

COVENTRY, *kŭv'ĕn-tre*, Sir JOHN: English member of parliament, who, 1670, Oct., rose and asked a question relative to a measure before the House, which was taken as an unwarrantable reflection on the king's amours. Charles was furious, and sent some of his guards to watch in the streets where C. lived, and leave a mark upon him. C. was attacked one night, and had his nose cut to the bone. Parliament took notice of this atrocious outrage, and passed a bill known by the name of the COVENTRY ACT, making cutting and maiming a capital offense; but

they had not courage sufficient to bring the king's bravoes to trial.

COVER, n. *kŭv'ėr* [F. *couvrir*, to conceal—from mid. L. *cŏŏpĕrīrĕ*—from L. *con*, *opĕrīrĕ*, to cover: It. *coprire*, to cover]: anything laid or spread over something else; anything that veils or conceals; disguise; shelter; protection: V. to overspread the surface or top of anything by another thing; to veil or conceal from view by some intervening object; to copulate; to clothe; to shelter; to wrap; to protect; to equal or be equivalent to. COV'ERING, imp.: N. anything spread or laid over another; a garment; bed-clothes. COV'ERED, pp. *-ėrd*. COV'ERCLE, n. *-ėr-kl* [F. *couvercle*] a small cover; a lid. COV'ERLET, n. *-ėr-lĕt* [F. *couvre-lit*, a bed-cover: OF. *covre-lit*]: the upper light covering of a bed, a cot, or a crib. COV'ERT, a. *-ėrt* [OF. *covert;* F. *couvert*, a cover, covered]: concealed; private; secret; disguised; insidious; under protection: N. a place which covers or shelters; a defense; a shady place; a thicket; a hiding-place. COV'ERTLY, ad. *-lĭ*, secretly; insidiously. COV'ERTNESS, n. COV'ERTURE, n. *-ėr-tūr* [F. *couverture*, a cover]: shelter; defense; in *law*, the state or condition of a married woman, as being under the power and protection of her husband. TO BREAK COVER, in *hunting*, to escape from a covert or lair.—SYN. of 'cover, v.': to conceal; hide; shelter; screen; shield; overspread; secrete.

COVERDALE, *kŭv'ėr-dāl*, MILES: 1487—abt. 1568; b. Yorkshire: eminent English divine. He was educated at Cambridge by the Augustin friars, and, becoming an Augustin monk, was ordained at Norwich. He appears, however, to have soon changed his religious opinions, and to have devoted himself earnestly to the work of the Reformation. Being abroad in 1532 he assisted Tyndale with his translation of the Scriptures, and three years afterward appeared his own translation of the Bible, with a dedication himself to Henry VIII. This was the first English Bible sanctioned by royal authority, as, indeed, it was the first complete translation of the Bible printed in the English language. The Psalms of this translation are those still used by in the Book of Common Prayer. In 1538, C., with the consent of King Henry VIII., and with the permission of Francis I., went to Paris to superintend another English edition of the Scriptures, his reason for going to Paris being that paper and workmanship were there cheaper and better than in England. The inquisition, however, notwithstanding the roya l license of Francis, interfered, seized the whole impression, consisting of 2500 copies, and condemned them to the flames. But through the cupidity of one of their executive officers, who sold a considerable number of the heretical books to a harberdasher as waste paper, some copies were saved and brought to London with the presses, types, etc., which had been employed in printing them. Several of the workmen also came over to London; and Gratfon and Whitchurch, the noted printers of that day, were thus enabled to bring out in 1539, under C.'s superintendence, the *Great Bible*, commonly called

Cranmer's Bible, on account of that prelate having written a preface to it. In 1551, C was appointed to the see of Exeter, the duties on which high ecclesiastical office he discharged with great zeal until the accession of Mary, 1553, when he was ejected, and thrown into prison, from which he was released after two years' confinement, on the earnest intercession of the king of Denmark, whose interest was evoked by his chaplain, C.'s brother-in-law, and on the condition that he should leave the country. C. went to Denmark, and subsequently to Geneva, where he assisted in producing the *Geneva Translation* of the Scriptures (1557–60). On the accession of Elizabeth, he returned to England; but certain notions concerning ecclesiastical ceremonies which he had imbibed at Geneva operated against his preferment in the church, and it was not until 1564 that he was collated to the rectory of St. Magnus, London. Owing to age and infirmities, he resigned this living in 1566, and died about two years afterwards. C. was the author of several tracts designed to promote the Reformation, and made various translations from the works of the continental reformers. The tri-centenary of the issue of his Bible was celebrated throughout the English Church, 1835, Oct. 4, and medals were struck in honor of the occasion.

COVERT WAY, *kŭv'ĕrt-wā*, or COVERED WAY, in Fortification: road or broad path outside the ditch of a fortified place, between the counterscarp and the glacis. It is about

Vertical Section of Defense-works.

30 ft. wide, and is sunk so far below the crest of the glacis, that soldiers standing upon it cannot be seen by the besiegers; hence the name of covert or hidden way. Sentinels, placed in the C. W., prevent all access of the enemy's spies to examine the ditch; and when musketeers mount on the banquette or raised platform on the side next the glacis, they can pour out a grazing fire on the enemy over the crest. The C. W. is broad enough to allow bodies of troops to form on it, either to act defensively or to make sorties; and to increase this accommodation, enlarged portions, called *places of arms*, are made at certain spots. In the annexed cut, representing a vertical section of the whole range of defense-works, from the *rampart* next the city to the *glacis*, the relation between the *C. W.* and the other works is clearly shown. The *banquette* of the C. W. is here shown to be about 3 ft. high by 4 wide, and reached by a sloping ascent of 4 ft.: see CURTAIN.

COVET, v. *kŭv'ĕt* [OF. *covoiter*, to covet—from Prov *cubitos*—from L. *cupītus*, passionately desirous, covetous: It. *cubitare* for L. *cupitārĕ*, to covet]: to desire or wish for

eagerly; to desire earnestly to obtain; to desire any object which cannot be obtained or possessed lawfully; to have an earnest desire for. Cov'eting, imp.: N. earnest inordinate desire. Cov'etingly, ad. *-lĭ.* Cov'eted, pp. Cov'eter, n. one who. Cov'etable, a. *-tă-bl,* that may be coveted. Cov'etous, a. *-ĕ-tŭs* [OF. *covoitus*]: eager to obtain; greedily desirous after; avaricious. Cov'etously, ad. *-lĭ,* in a covetous manner; avariciously. Cov'etousness, n. the quality of being covetous; an inordinate eagerness of gain; eagerness.—Syn. of 'covetous': avaricious; sordid; miserly; niggardly; parsimonious; penurious;—of 'covetousness': avarice; cupidity, etc.

COVETTA, n. *kō-vĕt'ta:* a plane used for molding framework, called also quarter-round.

COVEY, n. *kŭv'ĭ* [OF. *covee;* F. *couvée,* a brood—from OF. *cover;* F. *couver,* to hatch—from L. *cubārĕ,* to lie down]: a brood or hatch of birds; a small flock of birds; a flock of partridges.

COVILHA, *kō-vēl-yâng':* town of Beira, Portugal, having manufactures of brown cloth. Pop. (1878) 10,986.

COVIN, n. *kŭv'ĭn* [OF. *couvine,* and *covine,* intrigue—from *convenir,* to agree—from L. *convenīrĕ,* to meet together, to agree]: deceitful agreement between two or more to the hurt of another. Cov'inous, a. *-ĭ-nŭs,* deceitful; fraudulent. Covin- or Covine-tree, in *Scot.,* a tree planted before an old castle, where the lord received his guests, and on which criminals were executed; a trysting-tree.

COVING, n. *kō'vĭng* [AS. *kofa,* a cave, a room: L. *cavus,* a hollow, a cavity (see Cove 1)]: the projection of the upper parts of a building beyond the ground-plan; the vertical sides of a fireplace which incline backward and inward for reflecting the heat.

COVINGTON, *kŭv'ing-ton:* city, cap. of Kenton Co., Ky., on the Ohio river, and the Louisville, Cincinnati and Lexington, and the Ky. Central railroads, 99 m. n. of Lexington. It is opposite Cincinnati, with which it is connected by a suspension bridge over the Ohio river 2,252 ft. long, completed 1867, at a cost of nearly $2,000,000. It is connected with Newport, Ky., by a similar bridge over the Licking river, built 1854. Covington is built on a plain, covers over 1,350 acres, and, with its streets running from the river, appears like an extension of Cincinnati, many of whose business men reside in this place. It is divided into wards and governed by a mayor and common council; is supplied with water by the Holly system, which works were erected, 1871, at a cost of $430,000; and has several national banks, a public library, a Rom. Cath. hospital with foundling asylum attached, and a German orphan asylum a priory of the Benedictine order and a convent of Benedictine nuns; combined court-house and city hall; rolling mills, tobacco factories, cigar factories, breweries, distilleries, several beef and pork-packing houses, glass-works, silk manufactories, and weekly newspapers. In 1900, it had a total of 408 manufactories, with a capital of

$4,729,786, employing 3,898 persons, paying in wages $1,539,089, and yielding a product of $6,610,082. Covington has a high school, grammar and primary schools of a public character, and 10 Rom. Cath. academies and schools. There are a large number of churches, all the religious denominations being well represented. Covington is also the seat of a Rom. Cath. bishop. It was laid out 1815; incorporated as a city 1834. Pop. (1900) 42,938; (1910) 53,270.

COVODE, JOHN, American congressman: b. Westmoreland County, Pa., 1808, March 17; d. 1871, Jan. 11. He was a farmer's lad of Dutch blood, and became a coal dealer, a woolen manufacturer, and a railroad owner. He entered public life as a Whig, served two terms in the legislature, was sent to Congress in 1854 by the Anti-Masons (see ANTI-MASONRY), and reelected 1856 as a Republican, serving by regular re-elections till 1863. In 1859 he was appointed chairman of the special committee to investigate President Buchanan's conduct in forcing through the Lecompton Bill (see title below, and LECOMPTON CONSTITUTION), and his report was valuable ammunition for the Republican party. He was a member of the committee on the conduct of the war. After Johnson's accession he was sent South to aid in that President's reconstruction policy, but was recalled for lack of sympathy with it. In 1868 he was again elected to Congress, and was a strong opponent of Johnson. In 1869 he was chairman of the Republican State Committee of Pennsylvania. He was an eager, impulsive man, with the friendships and the enmities natural to such a temperament, but respected for his entire honesty.

COVODE INVESTIGATION, 1860. President Buchanan, in the struggle to have Congress validate the Lecompton Constitution (q.v.), was accused by two anti-Lecompton Democrats of having attempted to use corrupt influence with them. John Covode (see above), moved the appointment of a committee to enquire into these charges. In spite of the protest of the Democrats that only insinuations and no specific charges were made the committee was appointed with Covode at the head. President Buchanan sent in a message protesting against such action but his protest was overruled. On 16 June the committee reported, the Republican members declaring that the mass of evidence collected was proof of corrupt use of patronage, and Covode later alleged that they found also direct bribery, as evidenced by bank books. The Democratic members declared the allegations unsupported. No action was recommended to the House by the majority report, and none was taken.

COW, n. *kŏw*, Cows, n. plu. *kŏwz*, KINE, old plu. *kīn* [AS. *cu*, a cow; *cy*, cows: Dut. *koe;* Icel. *kyr;* Dan. *ko;* Ir. and Gael. *bó;* Ger. *kuh*, cow: L. *bos;* Gr. *bous;* Sans. *gao*, a bull, a cow]: the female of the bull, a well-known animal yielding milk for domestic uses. COW-BIRD, n.: see CUCKOO. COW-BOYS, n. plu.: a name given to a band of marauders

who during the American War of Independence infested the neutral ground between the two sides, and plundered the Revolutionists; also, name now applied to the men who watch and drive the great herds of cattle in the vast western plains in the United States. COW-CATCH'ER, a strong frame in front of a locomotive-engine, used in America to throw off large obstructions on the rails. COW-POX, small blisters that appear on the teats of a cow, the vaccine matter for inoculation being obtained from these. COW-HIDE, leather made from the skin of a cow; a rough riding-whip: V. to whip roughly. COW'FEEDER, one whose business it is to feed cows and deal in their milk. COW'HERD, one who tends cows in the field. COW-HORN, n. the horn of a cow; a dentist's instrument for extracting molars. COW-LEECH, n. *kŏw'lēch* [*cow*, and AS. *læce*, a physician, a leech]: a cattle-doctor. COW-LICK, a tuft of hair on the human head, so-named from its being turned back as if licked by a cow. COW-PAT, cow-dung. COW-WHEAT, the common name for the personated genus *Melampyrum*.

COW, v. *kŏw* [Sw. *kufva;* Dan. *kue;* Icel. *kuga*, to subdue, to bring under]: to depress with fear; to keep under; to dispirit. COW'ING, imp. COWED, pp. *kŏwd*.

COW: see OX: DAIRY.

COWAGE, or COWHAGE, *kow'ĭj*, or COW'ITCH: short, slender, brittle hairs, which grow on the outside of the pods of plants of the genus *Mucuna*, natives of tropical America and Asia. This genus belongs to the nat. ord. *Leguminosæ*, suborder *Papilionaceæ*, and has a knotted, two-valved pod, divided by transverse partitions. The species are twining plants, shrubby or herbaceous, with leaves of three leaflets. That which yields most of the cowage brought to Europe is *M. pruriens*, native of the W. Indies, with racemes of fine purple flowers, which have a disagreeable alliaceous smell, and pods about four inches long. *M. prurita* of the E. Indies, and *M. urens*, the Ox-eye Bean of the W. Indies, yield cowage of similar quality. The hairs readily stick in the skin, and cause intolerable itching. Cowage is used in medicine, acting mechanically in killing and expelling worms, particularly the species of *ascaris*. That it does not act on the inner surface of the intestinal canal, is supposed to be owing to the mucous secretion. It is generally administered in syrup, treacle, or honey.—Before the pods of cowage plants are ripe, they are used as a vegetable like kidney-beans; and are very palatable.

COWARD, n. *kŏw'ẽrd* [OF. *couard*, a hare, an animal proverbially timid, a coward—so called from its short tail: L. *cauda*, the tail—also applied to one who holds back: Sp. *cobarde*, a coward]: one who wants courage to meet danger of any kind; a timid person; a poltroon. COW'ARD, a., also COW'ARDLY, a. *-lĭ*, destitute of courage; timid; base; fearful; dastardly. COW'ARDLY, ad. *-lĭ*, in the manner of a coward; timorously. COW'ARDLINESS, n., also COW'ARDICE, n. *-ẽr-dĭs*, want of courage to face danger; undue fear or timidity. COW'ARDSHIP, n. the quality or character of

a coward.—Syn. of 'cowardly, a.': timorous; dastardly, pusillanimous; craven; mean; faint- or chicken-hearted.

COW'BANE: see Hemlock.

COW'BERRY: see Whortleberry.

COW-BIRD, or Cow-Bunting: see Cow-pen Bird.

COWBOYS, in the American revolution: a band of American tories who infested the neutral ground of Westchester co., N. Y., robbed the Whigs and Loyalists, and made a specialty of stealing cattle. A similar band of marauders on the British side received the name of 'skinners.' The word cowboys is now used to designate the men who have charge of the cattle on the vast ranges in Tex., Col., Ariz., New Mex., Kan., Montana, Idaho, and elsewhere in the w. and s.w. of the United States. They are well mounted, wear a fanciful costume consisting of an enormous sombrero, or Mexican hat of felt, buckskin breeches and jackets, and high top-boots, delight in gaudy waist-sashes and neck-cloths, use Mexican saddles with high stout pommels to which their horse-hair lassoes are attached, carry huge revolvers, and are perfectly at ease on their wiry, bucking broncos, a small mustang of Spanish origin. They are bold and adventurous, and from their necessarily wild and rough mode of life are often spoken of, as a class, with disfavor; but, while doubtless there are among them varieties of character, many of them are as honest and faithful as they are active and strong.

COWBRIDGE, *kow'brĭj:* municipal and parliamentary borough in the south of Glamorganshire, Wales, on the Ddaw, 12 m. w. of Cardiff. It consists chiefly of one long and wide street. It anciently had walls with three gates, built in the end of the 11th c.: one of the gates, a Gothic structure, still remains. With Cardiff and Llantrissant, it returns one member to parliament. Pop. abt. 1300.

COW'EN, Frederick Hymen, English musical composer and conductor: b. Kingston, Jamaica, 1852, Jan. 29. He was brought to England when very young, and studied music under Sir Julius Benedict and Sir John Goss. His first cantata *The Rose Maiden* was produced in 1870, and was followed by numerous cantatas, operas, and odes, including *Saint Ursula,; The Sleeping Beauty; Ruth; Song of Thanksgiving,; St. John's Eve; Thorgrim; The Water Lily; Signa; Harold; The Transfiguration; The Dream of Endymion; Ode to the Passions;* and *Coronation Ode.* He has also composed six symphonies', the chief being No. 3 (the Scandinavian), No. 4 (the Welsh), and No. 6 (the Idyllic.) Overtures, dances, suites, songs, and duets, pianoforte pieces, etc., make up the rest of his musical productions. In 1888 he conducted the concerts at the Melbourne Centennial Exhibition, and from 1888 till 1892 was conductor of the Philharmonic Society, and was re-elected in 1900. In 1896 he succeeded Sir Charles Hallé as conductor of the Manchester concerts, Liverpool Philharmonic Society, Bradford Festival Choral Society, etc.

COWER, v. *kŏw'ĕr* [W. *cwrian,* to squat: Icel. *kura,* to

roost, to doze: Dan. *kure*, to lie quiet: Gael. *cuar*, a corner. Fin. *kaara*, a curve]: to sink by bending the knees; to shrink or crouch through fear; in *OE.*, to cherish by care; to shelter. Cow'ering, imp. Cowered, pp. *kōw'ĕrd*. *Note.*—According to Dr. Charles Mackay, *cow*, *coward*, and *cower*, are all derived from Gael. *cū*, a dog—whence Cow, to treat like a dog. Cower, to slink or crouch, as a dog in fear. Coward—from Gael. *cu-ard*, a high or chief dog, an utter dog—from *ard*, eminent, high.

COWES, *kowz*, West: seaport and watering-place in the n. corner of the Isle of Wight, on the w. side of the mouth of the estuary of the Medina (here a third of a mile broad). It stands on a hill-slope, and has a striking aspect from the sea. There are many elegant villas in the vicinity. C. has much trade, being the port of the Isle of Wight. It has daily steam communication with Southampton, from which it is 10½ m. s.s.e.; and with Portsmouth, from which it is 11 m. to the w.s.w. At the angle formed by the Medina and the sea, is a small battery built by Henry VIII. C. is the head-quarters of the Royal Yacht Squadron and Club, who hold their annual regatta here. The industries include building and repairing of yachts and other vessels, sail and rope making, etc. Pop. (1901) 8,654.

East Cowes is on the e. side of the mouth of the Medina, 2 m. n.w. of Osborne House, the marine residence of Queen Victoria. Pop. (1901) 2,880.

COWL, n. *kŏwl* [OF. *cuoule;* AS. *cuqle;* W. *cwfl*, a monk's hood: Icel. *kufl*, a cowl: L. *cucul'lus*, a hood (see Cowl 2)]: a monk's hood or habit—a hood for the head, generally attached to a loose cloak, common in England in the middle ages, now almost confined in use to members of some religious order; a cover for a chimney that turns with the wind. Cowled, a. *kŏwld*, hooded; covered with a cowl.

COWL, n. *kŏwl* [OF. *cuvel* and *cuveau*, a little tub—dim. of F. *cuve*, an open tub]: in *OE.*, any kind of cup or vessel; a vessel carried on a pole, as *cowl-staff*.

COWLEY, *kow'lĭ*, formerly pron. *kō'lĭ*, Abraham: 1618–1667. July; b. London: son of a grocer. He was educated at Westminster School and Trinity College, Cambridge. According to his own statement, he was made a poet by the perusal of Spenser, whose works were wont to lie in his mother's parlor. A volume of poems, entitled *Poetic Blossoms*, was published by him at the age of 15, one of the poems written when he was 10 years old. At Cambridge, he obtained distinction through the elegance of his translations; and while there, he composed the greater part of the *Davideis*, an epic in four books—a work which he never completed. He was attached to the court party, and, in consequence, was ejected from his college, 1643, after he had taken his degree of M.A. In 1646, he followed the queen to Paris, in which city he remained ten years; and on his return to England, being under suspicion, he was seized and bound in heavy securities for his future behavior. In the same year, he published an edition of his poems, with a preface, in which certain passages appeared,

supposed to have a political bearing, which were suppressed in subsequent editions. After the Restoration, he expected to obtain the mastership of the Savoy, but was disappointed. He subsequently obtained a lease of the queen's land at Chetsey, in Surrey, whither he retired, 1665. He died in his 49th year, and was buried in Westminster Abbey, near Chaucer and Spenser. In 1675, a monument was erected to his memory by the Duke of Buckingham.

Although almost forgotten now, the time was when C.'s poetry was considered equal to Shakspeare's or Spenser's. It certainly has merits of ingenuity and verbal brilliancy. He is often splendid, but it is the splendor of the rocket rather than of the star. His prose is more natural than his verse, and some of its passages reach a stately eloquence, reminding the reader of the magnificent prose of Milton.

COWLEY, Henry Richard Wellesley, first Earl: English diplomatist of liberal opinions: 1804–84; son of the first Baron Cowley, better known as Sir Henry Wellesley. He early applied himself to diplomatic pursuits. An attaché at Vienna, 1824, he was afterward successively promoted to be sec. to the legation at Stuttgart, and to the embassy at Constantinople. Having acted as minister-plenipotentiary to Switzerland, and afterward to Frankfurt, he was (1851) appointed minister to the Germanic Confederation, and in the following year he succeeded the Marquis of Normandy as ambassador at Paris. For this position he had eminent qualifications, and held the appointment whether his party was in or out of office till 1867, when he resigned. With the Earl of Clarendon he represented Great Britain at the Paris Congress, 1856; and it was greatly owing to his tact and temper that ill-feeling between the two countries did not result in more serious disagreement. He was created Viscount Dangan and Earl Cowley, 1857, and made a K.G., 1865.

CO-WORKER, n. *kō-wėrk'ėr* [*con*, and *worker*]: one who works with another.

COWP, v. *kŏwp* [Gael. *cop*, to capsize]: in *Scot.*, to tilt over; to upset. Cowp'ing, imp. Cowped, pp. *kŏwpt*.

Cow Parsnip Flower.

COW PARS'NIP (*Heracleum*): genus of plants of the nat. ord. *Umbelliferæ*, having petals bent in at the middle, and flat compressed fruit. One species, the Common C. P. or HOG-WEED, called *Kiesh* in Scotland, a common and rank weed, with coarsely hairy leaves, and stem about 3–5 ft. high, is gathered in some parts of England for fattening hogs, and is said to afford wholesome food for cattle. Some Siberian species are much larger, and have been recommended for cultivation on account of the great quantity of herbage which they yield very early in the season, particularly *H. panaces*, which sometimes attains a height of 10 ft., and the root leaves are 3–5 ft. long.

Cow Parsnip Fruit.

COW-PEN BIRD (*Molothrus pecoris*), also called Cow Bird, Cow Troopial, Cow Blackbird, Cow Bunting, &c.: bird nearly allied to the Baltimore Birds and Troopials, having a short, conical beak, and remarkable for its habit of depositing its eggs, like the cuckoo, in the nests of other birds. It is a native of N. America, common in some of the southern states in winter, and migrating northward in spring. Great flocks are sometimes seen together. The C. B. is about seven inches in entire length, of glossy brownish-black plumage. It derives its name from its frequenting cow-pens, to feed on the insects contained in, or attracted by the dung. It selects for the reception of its eggs the nests of birds smaller than itself, and by an interesting provision of nature, its egg, which is not much larger than theirs, is hatched sooner, and theirs appear to be generally removed as addled eggs.

COW'PENS, BATTLE OF: 1781, Jan. 17, in a cattle pasture in Spartanburg co., S. C., abt. 30 m. w. of King's Mountain; between the British, under Col. Tarleton, and the Americans under Gen. Morgan and Col. Pickens. Tarleton had been detached by Cornwallis from his main body to cut off Morgan's division lying between the Broad and Catawba rivers. Morgan at first retreated on hearing of Tarleton's approach, but suddenly stopping at the Cowpens, turned upon his pursuers, poured a deadly volley into their astonished ranks, and then, by a brilliant bayonet charge, routed them and captured their colors and cannons. Tarleton barely escaped capture. The British lost 300 in killed and wounded, and 500 prisoners, 800 muskets, 2 cannons, and 2 standards; and the Americans, 72 in killed and wounded.

COWPER, *kow'pėr* or *kō'pėr*, WILLIAM: English poet: 1731, Nov. 26—1800, Apr. 27; b. in the parsonage house of Great Berkhamstead. His father, chaplain to George II., married Ann, daughter of Roger Donne, of Ludham Hall, Norfolk. This lady expired in childbirth in 1737, leaving two sons, William, the poet, and John. This event made a deep impression on C.'s mind: and the lines addressed to

his mother's portrait have probably drawn more tears than any other poem in the English language.

C. was a delicate and sensitive child, and boyhood brought with it only deeper melancholy and depression. At the age of six he was placed at a considerable school, kept by a Dr. Pitman, in Market Street, Hertfordshire. The period he spent here was very miserable, and laid the foundation of that settled gloom which oppressed him till death. It is to the remembrance of these wretched days that we are indebted for the fierce invective that burns in the somewhat one-sided *Tirocinium, or a Review of Schools*. C. completed his studies at Westminster School, and shortly afterward was articled to a Mr. Chapman, attorney in London.

After completing his three years' articles with Mr. Chapman, C. went, 1752, to reside in the Middle Temple. In 1754 he was called to the bar, but never practiced. His father died, 1756, and left him a small patrimony. In 1759 he removed to the Inner Temple; and though at this period he expected to secure some legal appointment through the influence of his family, he hated law with a perfect hatred, and seldom opened a book that bore on his profession. Yet he was industrious enough; he scribbled poetry, read Homer, and, in conjunction with his brother, translated some of the books of the *Henriade*. Soon after his settlement in the Inner Temple, he was appointed a Commissioner of Bankrupts; but there is no reason to believe that he ever entered on the duties of his office. An influential relative now offered him the office of Clerk of the Journals of the House of Lords, which was accepted; but he, having to undergo an examination at the bar of the House, was seized with nervousness, and could not appear. At this period his misery was so great that he meditated suicide, but fortunately failed to carry out his intentions for want of courage. In 1763, Dec., he was removed to the house of Dr. Cotton at St. Albans—a prey to the deepest remorse.

C.'s pecuniary means had suffered considerably by the loss of his appointments, but his friends contrived to make up an income sufficient for his wants. After his removal from St. Albans, he went to reside in the town of Huntingdon. Here he formed acquaintance with Mrs Unwin—the Mary of his poems—an acquaintance which ripened into the deepest friendship, and lasted till death. He went to reside with the Unwins, and enjoyed much tranquil happiness under that kindly and religious roof. When on a visit, 1773, Jan., to the Rev. Mr. Newton, a friend of the Unwins, and a man of sincere piety, but, from the peculiar cast of his religious views, perhaps not the best physician 'to minister to a mind diseased,' C.'s malady returned. Mrs. Unwin carefully tended him through the crisis of his delirium, and through his long and slow recovery. When convalescent, he betook himself to writing hymns with Mr. Newton, and to domesticating hares, with the particulars and little incidents of which amusement the world is pleasantly familiar. Mrs. Unwin also suggested, as a subject suited to his genius, *The Progress of Error*. C. set to work, 1780,

Dec., and by the following March had completed *Truth*, *Table-Talk*, *The Progress of Error*, and *Expostulation*. The vol. was published 1782.

In 1781, C. made the acquaintance of Lady Austen, who suggested to him *The Task*, urged him to translate *Homer*, and—what the world is perhaps still more grateful for—she related to him the history of John Gilpin. The story so seized C.'s fancy, that in the course of a single night he produced the poem which has tickled the midriffs of three generations. *The Task* was begun in the winter of 1783, and published 1785. Its success was great, and C. began to be considered the greatest poet of his day. In 1784 he began the translation of Homer, which appeared, 1791, and was received with great applause. He had labored hard, and had now to pay the penalty. The pen was the only weapon with which he could keep his constitutional malady at bay; but now, when seated at his desk, his genius would not answer the call. He began to hear again the voices and the whisperings which had afflicted him in earlier days. Mrs. Unwin's faculties also became affected, and the two friends were groping in the same twilight, deepening for both into the darkness of death. They left Olney, and were received into the house of Mr. Johnson, in Tuddenham, in Norfolk. Here Mrs. Unwin died 1796, Dec. 17. C. now fell into a state of utter dejection; in 1799 he was attacked by dropsy, and died in the following year, 1800.

C. was a great innovator in English literature; he destroyed the sentimentalists led by Hayley, and the image-hunters headed by Darwin. His poetry is eminently healthful, natural, and unaffected. C. and Robert Burns we have to thank for bringing back nature to English poetry. Besides being a poet, C. was perhaps the most delightful letter-writer in the English language. Nothing can surpass the charm of his epistles—full of fun, gentle sarcasm, anecdote, acute remark, and a tender shadow of melancholy thrown over and toning down the whole. The best edition of C.'s works (accompanied by an admirable biography) is that of Southey, 15 vols., 12mo, Lond. 1837–8.

COW PLANT (*Gymnema lactiferum*): perennial plant of the nat. ord. *Asclepiadaceæ*, native of Ceylon; with erect stem, ovate leaves, and very short umbels; which has acquired a factitious celebrity from the statement made and often repeated that its milky juice is used as a substitute for milk, and that its leaves are boiled to supply the want of cream. But this, according to Sir J. E. Tennant, is altogether a mistake, and the name is derived merely from the appearance of the juice.

COWRY, n. *kow'rĭ* [Hind. *kauri*]. (*Cypræa*): genus of gasteropodous mollusks of the ord. *Pectinibranchiata*—type of a family, *Cypræidæ*, to all of which the name C. is often extended—having the margin of the mantle prolonged into a siphon, by which water is conveyed into the gill-chamber; and a spiral convoluted shell, the spire visible in the young, but entirely concealed in the adult, and the

outer lip then thickened and bent in. The aperture extends the whole length of the shell. The shells, called *Porcelain Shells* by the French and Germans, are almost entirely calcareous in their composition, are richly enamelled, and often very beautiful. They are most abundant, and attain their largest size in the seas of warm climates. Only a few very small species are

Money Cowry.

found on the British coasts. Some of the species are much prized by collectors of shells. The Money C. (*C. moneta*) is of commercial interest, from its general use as a substitute for coin in many parts of Asia and Africa. It is not of great beauty, is yellow or white, often with a yellow ring, about an inch long, and nearly as broad as long. It is found on the Indian coasts, and in particular abundance on those of the Maldive Islands, and is one of their principal exports. In Bengal 3,200 cowries are reckoned equal to a rupee, so that a C. is about equal in value to one thirty-sixth of a farthing. Yet cowries to the value of 200,000 rupees are said to have been at one period imported annually into Bengal. Many tons of cowries are annually imported into Britain, to be used in trade with the west of Africa, and this importation began when it was in the slave-trade that they were employed.—To the family *Cypræidæ* belong the shells called *Poached Eggs* (*Ovulum*), the *Weaver's Shuttle Shell* (*Ovulum volva*), remarkable for its prolongation at both ends, etc. Fossils of this family are numerous in some strata, as in the *Bagshot Beds* (q.v.)

Cowslip.

COWSLIP, n. *kŏw'slĭp* [AS. *cú-slyppe:* probably for *cow's-leek*, as house-leek: Icel. *laukr*, a garden vegetable]: (*Primula veris;* see PRIMROSE): common native of pastures in England and many other parts of

Europe, a delicate and modest little flower, a universal favorite, both for its beauty and for its fragrance. The flowers are small, in an umbel at the top of the scape, the limb of the corolla short and concave. The flowers have sedative properties, and are sometimes used as an anodyne and anti-spasmodic. They are fermented with sugar to make *cowslip wine*, an agreeable and favorite soporific domestic medicine.—The name VIRGINIAN COWSLIP is given to the *Dodecatheon Meadia*, a perennial plant, also of the nat. ord. *Primulaceæ*, native of N. America, with a stalk about eight inches high, bearing an umbel of gracefully pendent lilac flowers, the petals reflexed over the calyx, the stamens and pistil long, and the anthers of a golden color. It is very ornamental in the flower-border, flowering in the end of April or beginning of May.

COW TREE: name given to a number of species of tree of different nat. orders, the bland, milky juice of which is used instead of milk. They all are natives of tropical countries, and belong mostly to nat. orders in which acridity is the general characteristic of the milky juice. Some of them belong to the nat. ord. *Moraceæ*, and are closely allied to the Fig; others to the nat. ord. *Artocarpaceæ*, one of which is the famous PALO DE VACA or C. T. of the Cordilleras and Caraccas (*Galactodendron utile*, now referred rather to the genus *Brosimum*, see BREAD-NUT). Another is the HYA-HYA (*Tabernæmontana utilis*), native of equatorial America, belonging to the nat. ord. *Apocynaceæ*.

Cow Tree (*Galactodendron utile*).

The PALO DE VACA grows in rocky situations, at an elevation in equatorial regions of about 3,000 ft. It is a lofty tree, with laurel-like leaves, 10–16 inches long, and very small flowers. For several

Fruit of Cow Tree.

months in the year, not a shower moistens its foliage, and its branches appear dead; but as soon as the trunk is pierced, there flows from it a copious stream of sweet and nourishing milk. The milk flows most freely at sunrise. The natives are then seen hastening from all quarters with

bowls to receive it. The milk has an agreeable odor, and a viscidity which does not belong to the milk of animals; it becomes yellow in a short time, and thickens or foams a sort of cream at the surface, which gradually thickens into a cheesy consistency before it begins to putrefy. This milk is nutritious, and is much used by the negroes and Indians; but differs very materially in its composition from the milk of animals, more than one-half being wax and fibrin; a little sugar, a salt of magnesia, and water chiefly making up the rest.

The HYA-HYA also yields a copious, milky juice, used in Demerara and elsewhere as an agreeable and nutritious substitute for milk.

COW-WHEAT (*Melampyrum*): genus of plants of the nat. ord. *Scrophulariaceæ*, having an oblong two-celled capsule, with a few seeds somewhat resembling grains of wheat. The species are natives of the temperate parts of the n. hemisphere, annual plants with opposite narrow leaves and yellow flowers, growing in woods, corn-fields, pastures, etc. Several are natives of England. They are said to be very fattening to cattle, and to give a peculiar excellence to butter.

COX, DAVID: landscape painter of the English school: 1783, Apr. 29—1859, June 7; son of a Birmingham smith. He worked for a time as a smith, then at the toy trade; next as an assistant to a scene-painter, from which he advanced to teaching and painting. He died at Harborne. An exhibition of his pictures, sketches, and water-color drawings was held in London in the same year. Before his fame was established, Cox destroyed not a few of his drawings, or sold them for a few shillings; while before and after his death, £1,575 to £3,430 have been paid for single pictures. He was thoroughly insular, and distinctly English in his habits and tastes. His paintings are usually small, and chiefly Welsh subjects; they show thorough familiarity with nature, and, though sometimes rough in execution, are very effective; while he was remarkable for his success in sketching rain and wind, bursts of sunshine, or the herbage of marshes. In 1814, he issued a *Treatise on Landscape Painting in Water Colors*, which is still an authority.

COX, JACOB DOLSON, American soldier: b. Montreal, 1828, Oct. 27; d. Magnolia, Mass., 1900, Aug. 4. He was graduated at Cambridge in 1844, becoming a lawyer; but upon the outbreak of the Civil War was made brigadier-general of Ohio Volunteers. In 1862 he became Major-General of the United States Volunteers, and in 1864 commanded a division at Nashville. He was elected governor of Ohio in 1865, and in 1869 became Secretary of the Interior in President Grant's cabinet.

COX, KENYON, American painter: b. Warren, Ohio, 1856, Oct. 27; a son of J. D. Cox (q.v.). After studying in Paris under Duran and Gerome, he settled in NewYork in 1883 as a portrait and figure artist. Among important

pictures by him are *Jacob Wrestling With the Angel; Vision of Moonrise; Painting and Poetry; Flying Shadows.* As an illustrator also he takes high rank, his designs for Rosetti's *Blessed Damozel* being well known, and he has written many able art criticisms and reviews. He is a member of the Society of American Artists, and of the Architectural League, New York.

COX, Palmer, American artist and writer for young people: b. Granby, Quebec, 1840, April 28. Since 1875 his home has been in New York. His works are both written and illustrated by himself. He is best known by his *Brownie Books*, a very popular series containing humorous pictures and verse for children. Other productions are: *Hans Von Petter's Trip to Gotham* (1878); *How Columbus Found America* (1878); *Queer People* (1888); etc.

COX, Richard: 1499–1581, July 22; b. Whaddon, England: clergyman. He was educated at Eton, and at King's College, Cambridge, appointed an officer of Christchurch College, Oxford, immediately after its establishment, by Cardinal Wolsey, thrown into prison for having accepted the doctrines of the reformers, and subsequently became master of Eton, prebendary of Ely cathedral, tutor to Prince Edward, and, after his accession to the throne, chancellor of Oxford, canon of Windsor, dean of Westminster, and privy councilor. He suffered a brief imprisonment under Queen Mary, lived sometime in retirement in Strasburg, whence he was recalled and appointed bp. of Ely by Queen Elizabeth, translated the four gospels, Acts of the Apostles, and Epistle to the Romans for the 'Bishop's Bible;' assisted in compiling and revising the Liturgy; and was noted for his zealous and even violent defense of the reformed faith.

COX, Samuel Hanson, d.d., ll.d.: 1793, Aug. 25—1880, Oct. 2; b. Leesville, N. J.: Presb. minister. He was of Quaker parentage and education, studied law a few months, and then turned to theol.; was ordained by the presb. of N. J., 1817, July 1; became pastor of the Spring street Presb. church, New York, 1820; made a trip to Europe 1833, had his house and church sacked by a mob on account of his activity in the anti-slavery movement 1834, July 10; was chosen prof. of sacred rhetoric in the Auburn Theol. Seminary 1834, and was pastor of the First Presb. Church, Brooklyn, 1837–54, and most of this time was also prof. of ecclesiastical history in Union Theol. Seminary, New York. Upon the division of the Presb. Church, 1837, he gave his adhesion to the 'New School' branch, which he represented several times in important gatherings in Europe, and was moderator of its general assembly 1846. The failure of his voice compelled him to give up preaching 1854, and he subsequently made his home at Oswego, N. Y. He was author of *Quakerism not Christianity* (1833), and *Interviews, Memorable and Useful* (1853), besides numerous discourses and sermons.

COX, Samuel Sullivan: 1824, Sept. 30—1899, Sep. 10; b. Zanesville, O.; statesman and author. He graduated at Brown Univ. 1846, was admitted to the bar in Cincinnati, was editor and proprietor of the Columbus (O.) Statesman 1853–4, sec. of the U. S. legation in Peru 1855, and delegate to the national democratic conventions 1864, 68, and 76. In 1856 he was elected member of congress from the Columbus cong. dist., and served continuously by re-elections, 1857, Dec. 7–1865, Mar. 3. He removed to New York, 1865, was elected to congress 1868 and served continuously till 1885, when he was appointed U. S. minister to Turkey, which office he resigned 1886 to re-enter congress, of which he is still a member (1888). During his long service he has acted frequently as speaker of the house *pro tem.*, held chairman ship and membership on important committees, and introduced many popular measures that became laws. He has travelled extensively, and besides contributions to newspapers and magazines has written *The Buckeye Abroad* (New York, 1851); *Puritanism in Politics* (1863); *Eight Years in Congress* (1865); *A Search for Winter Sunbeams* (1870); *Why we Laugh* (1876); *Free Land and Free Trade* (1876); *Arctic Sunbeams* (1882); *Orient Sunbeams* (1882); *Three Decades of Federal Legislation* (1885); *Diversions of a Diplomat in Turkey* (1887), and *The Isles of the Princes* (1887).

COXA, n. *kŏks'ă* [L. *coxa*, the hip]: one of the highest parts of the hinder legs of an insect, corresponding to the hip of an animal.

COXALGIA, *kŏks-ăl'jĭ-a*, or Coxitis, *kŏks-ī'tĭs:* chronic inflammation of the hip-joint, usually beginning in the head of the thigh-bone or the socket of the hip-bone, and extending to all the surrounding soft parts. The disease, most frequent among children, often proceeds from a fall or blow, and its early presence is detected by lameness, pain in the knee, and subsequent soreness in the joint itself. The limb becomes shortened, dislocation sometimes occurs, and, more frequently, the socket of the joint enlarges and the head of the thigh-bone separates from its shaft. Death may intervene from exhaustion, the absorption of pus, or pyæmia.

COXCIE, or Coxis, *kŏk'sē*, Michael: 1497–1592; b. Mechlin, Belgium: painter. He pursued art studies with Van Orley and in Rome, where he executed a number of frescoes in the Church della Aurina, and is known chiefly by his copy of the *Adoration of the Lamb* by the Van Eyck brothers, painted for Philip II. of Spain, removed from Madrid to Brussels by the French, and subsequently mutilated and distributed between the art galleries of Berlin, Munich, and Amsterdam. He made also a notable series of illustrations of the fable of Cupid and Psyche.

COXCOMB, n. *kŏks'kōm* [*cock's-comb*, something resembling it formerly worn by licensed fools in their caps: comp. Gael. *caoch*, empty; *com.* the cavity of the chest]: a vain, conceited, silly man, fond of dress and personal

display; a fop; a vain showy fellow; in *OE.*, a fool's cap; the head. Cox'COMBRY, n. *-kōm-rĭ*, foppishness. COXCOMBICAL or COXOMICAL, a. *kŏks-kŏm'ĭ-căl*, foppish; conceited.—SYN. of 'coxcombical'; finical; dandyish; spruce; fanciful.

COXE, *kŏks*, ARTHUR CLEVELAND, D.D., LL.D.: b. Mendham, N. J., 1818, May 10; son of Samuel Hanson Cox, D.D.; d. Clifton Springs, N. Y., 1896, July 20; Prof. Episc. Bishop. He graduated at the Univ. of the City of New York 1838, and at the Gen. Theol. Seminary of the Prot. Episc. Church 1841; was ordained deacon 1841, June 27, and priest, Sep. 25; and was rector of St. John's Church, Hartford, 1843–54, Grace, Baltimore, 1854–63, and Calvary, New York, 1863–65. He was elected bp. of the diocese of Tex., but declined, 1856; was consecrated asst. bp. of Western N. Y. 1865, Jan. 4, and became second bp. of that diocese 1868, April. From an early period of his ministry he was active in the councils and work of the church. He was a member of several general conventions; was author of a motion in the house of deputies 1853 which led to the revision of the prayer-book 1883; provisional bp. of the church in Hayti, where he organized churches and ordained clergy, 1872–74; delegate to the second Lambeth conference; and active opponent of the New Test. revision. He was a scholar of wide travel and large authorship, an expert controversialist, and an accomplished parliamentarian. Besides a large number of tracts, translations, sermons, lectures, and contributions to general literature, he published *Advent, a Mystery* (1837), *Jonathan, the Lay of a Scold* (1838), *Athwood* (1838), *Athanasion* and *Other Poems* (1842), *Hallowe'en* (1844), *Christian Ballads* (1845), *Saul, a Mystery* (1845), and *The Ladye Chase* (1877), poems; *Apology for the English Bible* (1854), *Thoughts on the Services* (1859), *The Criterion* (1866) *Anglican Orders* (in the *Union Chértienne*, Paris, 1867–8), an *Open Letter to Pius IX* (1869), and *L'épiscopat de l'occident* (Paris, 1872). He edited an American edition of *Translations of the Ante-Nicene Fathers* (1885–6), and in 1888, July, confirmed a large portion of Père Hyacinthe's congregation in Paris.

COXE, TENCH, American economist: b. Philadelphia, Pa., 1755, May 22; d. there 1824, July 17. At first a Royalist he became a Whig, was a member of the Annapolis Convention 1786; the Continental Congress 1788; assistant secretary of the treasury 1790; commissioner of the revenue 1792–7; and purveyor of public supplies 1803–12. He early devoted much attention to political economy, and his writings and ideas on this subject constitute his chief claim to remembrance. He favored the prohibition of the coasting trade to foreign shipping; the importation of foreign goods only in ships of the country producing them; the special encouragement of manufactures; and the exemption of raw materials from tariff duties. He urged the South to take up cotton-raising, is sometimes called the father of the American cotton industry, and is

said to have been the first to attempt to bring an Arkwright machine to the United States. His publications include: *Inquiry into the Principles on Which a Commercial System for the United States Should be Founded* (1787); *Thoughts on Naval Power and the Encouragement of Commerce* (1806); *Memoir on Cultivation, Trade, and Manufacture of Cotton* (1809); *Statement of the Arts and Manufactures of the United States for the Year* 1810 (1814), the first extended attempt to make an industrial census of the country.

COXEY, Jacob Sechler: agitator: 1854— —— ———; b. Penn. As a boy he worked in a rolling-mill, and later began business on his own account, in turn being owner of a sandstone quarry at Massillon, O., and a horse-breeder near Lexington, Ky., afterward at Massillon. First a greenbacker in politics, he bacame a populist, and was a delegate to the populist convention in St. Louis 1896. As a business man he showed enterprise and honesty, has always been popular among his neighbors, and his family life is said to be exemplary. Having been brought up an Episcopalian, he became a 'Christian Theosophist,' and advocated the reconstruction of society through reformed financial systems and juster relations between government and citizens. In 1893 Nov. he announced that he intended to lead an army of 100,000 of unemployed people to Washington, to petition Congress for the issuance of $500,000,000 in non-interest bearing bonds, to be used for the improvement of roads. Coxey left Massillon 1894, on 25 March, at the head of 122 people, and reached Washington 1 May. In the attempt to make a speech from the capitol steps, he was accused of stepping on the grass, and with one Carl Browne, was imprisoned for 20 days. The starting of several 'commonweal' companies, or Coxey contingents, denominated 'armies,' for Washington in the early part of 1894, demonstrated how widespread was the condition of idleness, but in other respects these schemes were failures.

COXIM, *kō-shēm'*: one of the head-waters of La Plata. It rises in Matto Grosso, a frontier province of Brazil, toward Bolivia and Peru; and, after flowing first n.e. then n.w., it enters the Taquari, itself a tributary of the Paraguay, in lat. 18° 24′ south. The Coxim receives many affluents.

COXSWAIN: see Cockswain.

COY, a. *kŏy* [F. *coi*, still, quiet: It. *cheto;* Sp. *quedo;* L. *quiētus*, quiet]: bashful; modest; reserved; not accessible: V. to treat with reserve; to condescend unwillingly. Coy'ing, imp. Coyed, pp. *kŏyd.* Coy'ly, ad. *-li.* Coy'ness, n. reserve; unwillingness to become familiar. Coy'ish, a. *-ish*, somewhat coy. Coy'ishly, ad. *-lĭ.* Coy'ishness, n. a quiet reserved bashfulness; unwillingness to become friendly.—Syn. of 'coy, a.'; shy; distant; backward; shrinking; strange.

COYNESS: In psychology, this term is used to express the attitude that the female takes toward the male. It is clearly instinctive and is exhibited by human beings as well as by animals. The sexual impulse is very strong in males and generally active and coyness in the female is the most effective preventive of the too frequent and too early yielding to the act of sexual congress. Coyness may be overcome by persistent pursuit and the exercise of the arts of displaying color, form, movement and sound on the part of the male. Coyness shows a very marked development in many of the lower animals, especially in some birds. Darwin makes much of it in his theory of sexual selection. The instinct is there made responsible for, and correlated with, the bringing out of distinguishing male traits, such as high colors and song.

COYOTE, *kō-yō′tĕ* or *kī′ōt*. See WOLF.

COYPU, *koy-pō′* (*Myopotamus Coypu*): rodent quadruped nearly allied to the beaver, with which it agrees in the number and character of its teeth, in its short limbs, in its feet having five toes each, the hinder feet webbed and the fore feet not webbed, and to a considerable extent in its habits; but from which it differs in the form of its skull, having a more elongated muzzle and a contracted palate, and in its slender tail resembling that of a mouse. It is the only known species of its genus, and inhabits a great part of S. America, on both sides of the Andes, burrowing in the banks of the rivers, and sometimes in forests near the seabeach. It is very nearly equal in size to the beaver, has small ears, very long and stiff whiskers, and long hair mixed with dense and soft short hair, the upper parts beautifully pencilled with different shades of yellow, the sides and under parts lighter and more uniform in color. The fur has become an important article of commerce, under the name of RACOONDA (q.v.) and NUTRIA, the latter name signifying in Spanish an otter, apparently given it by mistake, but being that chiefly used in Britain.

COYSTREL, n. *kŏys′trĕl* [OF. *coustillier*, a squire who carried the arms by the side of his master]: in *OE.*, a groom or lad who carried a knight's arms, etc.; a degenerate hawk; an unwarlike attendant on an army; a cowardly man; a poltroon.

COZ, n. *kŭz*, a contracted form of *cousin*.

COZEN, v. *kŭz′n* [OF. *cousiner*, to claim kindred for particular ends, in *F.* to call any one cousin, to sponge: Gael. *coisinn*, to gain, to win]: to cheat; to defraud; to deceive. COZ′ENING, imp. *kŭz′n-ĭng*. COZENED, pp. *kŭz′ĕned*. COZ′ENER, n. *-ĕn-ĕr*, a cheat. COZ′ENAGE, n. *-ĕn-āj*, fraud; deceit; the practice of cheating.

COZIER, n. *kō′zĭĕr* [Gael. *coisear*, a pedestrian—from *coise*, feet]: in *OE.*, a traveller on foot; a tramp.

COZY, or COSY, or COSEY, a. *kō′zĭ* [Scot. *cosie*, sheltered, warm: Gael. *cos*, a recess; *cioseach*, a warm quiet corner]: warm; snug; comfortable; chatty; social; written also

Cosie. N. a decorated padded cover put over a tea or coffee-pot while on table to keep the pot warm and promote the perfect infusion of the tea or coffee. Co'zily, or Co'sily, or Co'seyly, ad. *-lĭ*.

COZZENS, *kŭz'ĕns*, Frederick Swartwout: 1818, Mar. 5—1869, Dec. 23; b. New York: author. He was educated in New York, engaged in business as a wine merchant when 21 years old; edited and published the *Wine Press*, one of the earliest trade papers, and applied the greater part of his leisure to literary works. Excepting his essays on grape-culture and wine-making in his paper, and his *Memorial of Col. Peter A. Porter* and *Memorial of Fitz-Greene Halleck*, his writings in prose and verse are highly humorous, and include *Prismatics* (articles contributed to the *Knickerbocker Magazine*, 1853); *The Sparrowgrass Papers* (1856); *Acadia; a Sojourn Among the Blue-Noses* (1858); *A True History of New Plymouth* (1858); and *Sayings of Dr. Bushwhacker and other Learned Men* (1867).

CRAB, n. *krăb* [Sw. *krabba*, a crab-fish, from the notion of pinching, in allusion to the bitter taste: comp. Gael. *craobh*, a tree]: a sour harsh apple, growing on native, wild, or uncultivated trees; the *Pyrus mālus*, Ord. *Rosācĕæ* (see Apple and Malus): a peevish, morose person: Adj. crab-like; sour. Crabbed, a. *krăb'ĕd*, sour and ill-tempered; rough; austere; peevish; morose. Crab'bedly, ad. *-lĭ*. Crab'bedness, n. Crab-Lobster (*Porcellana*), a genus of crustaceans, tribe *Anomura*. Crab-louse, a kind of louse, *Plithirius inguinalis*, found in certain cases on the human body, to which it closely adheres. Crab-tree, n. wild apple-tree.

CRAB, n. *krăb* [Sp. *cabra*, a goat, a machine for throwing stones; *cabria*, a crane: comp. Gael. *cabar*, a stake, a pole —*lit.*, the trunk of a tree, a windlass]: an apparatus something like a capstan, and used for similar purposes; an engine with three claws for launching ships. Craber, n. *krā'bĕr*, in *OE.*, the water-rat.

CRAB, n. *krăb* [Icel. *krabbi;* Dan. *krabbe;* Ger. *krebs*, a crab, the pinching animal: L. *carabus;* Gr. *karabos*, a prickly kind of crab, also a kind of beetle: Bret. *krab*, a crab; *kraban*, a claw]: popular name of all the crustaceans or shell-fish of the order *Decapoda* and sub-order *Brachyoura* and extended also to some of the sub-order *Anomoura*. All the crabs, besides many other crustaceans, were comprehended in the Linnæan genus *Cancer;* but the number of species is very great, and the *Brachyoura* alone are now arranged into many genera and even families. The different kinds of crabs differ very much in the form of the carapace (the back), which, in some is orbicular or nearly so; in some, much broader than it is long; in others, longer than broad; in some, prolonged in front into a kind of beak, etc.; also in its smoothness, or roughness with hairs, tubercles, or spines; in the length of the legs, etc. The eyes are compound, with hexagonal

facets, and are elevated on stalks, which are generally short, but sometimes considerably lengthened, and which have the power of motion, so as to turn the eye in different directions. The first pair of limbs are not used for locomotion, but exhibit in great perfection the characteristic claws or pincers (*chelæ*) of the decapod crustaceans. Crabs are inhabitants of almost all seas; most of them, however, having their limbs formed for walking rather than for swimming, are found chiefly near the coast; some inhabiting comparatively deep water, and others abounding in those parts which are left by the receding tide, where they occur equally in the rock pools and among the moist sea-weeds. Some small kinds of crabs (*Pea Crabs*) are often found in the inside of mussels and other bivalve mollusks. Some crabs inhabit fresh water, particularly in the warmer parts of the world; others, known as land-crabs (q.v.), live among moist herbage, or burrow in sand or earth. Some have the last pair of limbs expanded at the extremity into a broad blade for swimming, and some have even all

Large edible Crab (*Cancer Pagurus.*)

the four pair of limbs intended for locomotion thus expanded, and sometimes occur far out at sea. Some of the crabs, with very long legs, are known as Spider-crabs. Crabs molt or change their shell, not at fixed intervals or seasons, but according to the exigencies of their growth; the change being made with great frequency when they are very young, but rarely in advanced age: indeed, from the mollusks, and other animals sometimes found adhering to the carapace, it is inferred that the same covering is sometimes worn for a number of years.—For the metamorphosis of crabs, see CRUSTACEANS.—Crabs are interesting inmates of the aquarium, from their readiness in seizing food, their activity in tearing and eating it, their general habits, and, in particular, their pugnacity. The number of specimens is apt, however, to be soon diminished by the stronger killing and eating the weaker.—Many kinds of crabs are used as food in different parts of the world, as the Large Edible C. (*Cancer Pagurus*) and Small Edible C. (*Carcinus Mœnas*) of the British shores. The latter is extremely common on all parts of the coast, but is not nearly so much esteemed as the former, which is much sought after, and is caught either in the holes of the rocks at low tide, or by means of a kind of trap, a basket which readily

permits its entrance but not its escape, and which is baited with meat or animal garbage of some kind. In winter it seems to retire to deeper water. Its black claws and very broad carapace, arched at the sides, distinguish it from many other species. It is sometimes nearly a foot in breadth. The claws of the Edible C. were formerly ground to powder and used as a medicine, having, however, no properties but those of carbonate of lime.

CRAB, Roger: singular sectary of the English Revolution, who served for seven years in the parliamentary army: died, 1680, Sep. 11. C. set up in business as 'a haberdasher of hats' at Chesham, Buckinghamshire, and imbibed the idea that is was sinful to eat any kind of animal food, or to drink anything stronger than water. Determined to follow, literally, the injunctions given to the young man in the gospel, he sold of this stock-in-trade, distributing the proceeds among the poor, and took up his residence in a hut. His food consisted of bran, dock-leaves, mallows, and grass. The persecutions the poor man inflicted on himself caused him to be persecuted by others, unmercifully whipped, and put in the stocks. Though he declared that he was neither a Quaker, a Shaker, or a Ranter, he was four times arrested on suspicion of being a wizard, and was sent from prison to prison; yet still he would persist in his course of life. He published two pamphlets, one entitled *The English Hermit;* the other *Dagon's Downfall.* It is evident that he was insane. His last known residence was at Bethnal Green.

CRABB, *krăb,* George: 1778, Dec. 8—1854, Dec. 14; b. Palgrave, England: lawyer and philologist. He graduated at Oxford Univ. when 43 years old, and was admitted to the bar when 51. He compiled a number of educational text-books; *English Synonymes* (1816): *An Historical Dictionary* (1825); *Mythology of all Nations* (1847); *A Technological Dictionary; A History of the English Law; A Digest and Index of all the Statutes at Large; A Technical Dictionary of Terms used in Science and Art;* and *A Dictionary of General Knowledge.* His *English Synonymes* has been widely used.

CRAB: n. one of the signs of the Zodiac.

CRABBE, *krăb,* George: 1754, Dec. 24—1832, Feb. 3; b. Aldborough, in Suffolk: English poet. His father was a warehouse keeper, and collector of the salt-duties at Aldborough, and exerted himself to secure for his son a superior education. C. early showed a passion for all kinds of book-learning, with a decided bias toward poetry. After being tolerably grounded at school in mathematics and classics, he was, in his 14th year, apprenticed to a surgeon at Wickham Brook, near Bury St. Edmunds; but he had no liking for the profession, and ultimately went to London, 1780, with £3 in his pocket, to make a trial of literature. For a while he was very unfortunate. At last, when threatened with arrest for debt, he resolved to make his case known to Burke. He told Mr. Lockhart, years afterward, 'the night after I delivered the letter at the door, I

was in such a state of agitation that I walked Westminster Bridge backward and forward until daylight.' The great orator at once appointed an interview, looked over C.'s poetical compositions, suggested several alterations which were adopted, and finally took *The Library* and *The Village* to Mr. Dodsley, by whom the first-named poem was published, 1781. C went to reside at Beaconsfield with his generous and brilliant acquaintance, and while there met Fox, Sir Joshua Reynolds, and Lord Thurlow; the last of these invited the new celebrity to breakfast, and presented him with a bank-note for £100, at parting.

By the advice of Burke, C. entered into holy orders, and was ordained curate of his native place 1782. Shortly afterward he was appointed domestic chaplain to the Duke of Rutland, and took up his residence at Belvoir Castle. *The Village* appeared 1783, and established the reputation of its author. Shortly afterward, Lord Thurlow presented him with two small livings in Dorsetshire; and C., free from the fear of want, married Miss Sarah Elmy, and entered into the purest domestic happiness. In 1785, he left the castle, and took up his residence in the parsonage of Strathern; thereafter for many years he botanized, studied geology, wrote poems, saw—in hurried visits to London —the distinguished men of his time, and was courted by them, enjoying an uninterrupted course of happiness and honor.

The Newspaper appeared 1785; in 1807, C. published *The Parish Register;* in 1810, *The Borough;* two years later, he produced his *Tales in Verse;* and, 1819, he gave to the world his *Tales of the Hall.* In 1813 his wife died, and soon afterward he procured the living of Trowbridge, where, for the remainder of his life, he resided. In the autumn of 1822, he visited Edinburgh, and was the guest of Sir Walter Scott. His health began to fail at the age of 74, and four years later he died.

C. disdained all the luxuries of his art. He has no heroes with a Hyperian front, and no heroines radiant as Aurora. He worked with the delf, not with the porcelain of human clay. He concerns himself with wild smugglers, denizens of villages by the sea, full of ancient and fish-like smells; gypsies on the heath, cooking the fowl purloined from the neighboring barnyard; with tramps, vagabonds, and vagrants, and the inmates of the workhouse. On his page these unsavory individuals live, carouse, curse, brawl, and die. He has pages stern as anything in *The Inferno;* many, droll as Hogarth's pictures; and one or two so sweet, and tender, and pathetic, that no man of any sensibility can read them unmoved.

CRABETH, *krâ'bĕt,* Dirk and Wouter—the last surnamed theElder: two brothers, glass-painters, in the latter half of the 16th c.: b. (it is supposed) at Gouda in s. Holland. It seems that Dirk visited France in his youth, while Wouter journeyed to Italy, where he studied the works of Raphael, as is evident from his productions. Wouter, it is said, surpassed his brother in drawing, grace,

and clearness, while Dirk surpassed him in coloring. They, however, were jealous of each other, and each concealed from the other the secrets of his processes. Their conjoint work in the church of St. John at Gouda, is the masterpiece of the two brothers. Of the eleven painted windows in that church, seven are by Dirk, and four by Wouter. They were done 1555—71. Dirk died, it is believed, 1601. It is unknown when Wouter died. The brothers were buried in the sanctuary that they had so surpassingly illustrated.

CRABIONIDÆ, *krā-brŏn'ĭ-dē:* family of hymenopterous insects, section *Aculeata*, sub-section *Fossores*.

CRABRO, *krā'brō:* hymenopterous insect of the hornet family: see HORNET.

CRABS, n. plu.: in gaming, the lowest cast at hazard.

CRABTREE, CHARLOTTE (best known by her stage name 'LOTTA'), American actress: b. New York 1847. She made her first appearance on the stage when six years old in an amateur performance. At the age of 10 she played the part of Gertrude in the *Loan of a Lover* at Petaluma. In 1863 she appeared in New York in spectacular plays at Niblo's Garden, and first gained a reputation in John Brougham's *Little Nell and the Marchioness*. She soon became a favorite with the American public in pronounced comedy, playing parts especially written for her. Her chief successes have been as *Topsy; Sam Willoughby; Fire-Fly; Musette; Zip; Bob; The Little Detective;* and *Nitouche*.

CRACIDÆ, n. *krăs'ĭ-de* [mod. L. *crax* (gen. *cracis*); fem. pl. adj. suf. *-ădæ*]: the Currassows, a family of gallinaceous birds. Genera *Crax, Penelope, Ourax*, etc.; found in Central and S. America; apparently the American representatives of the *Phasianidæ* (pheasants) of the eastern world.

CRACK, n. *krăk* [a word imitative of the sound of a hard substance in splitting, or by the collision of hard bodies: F. *crac;* Dut. *krak;* Gael. *cnac*, a crack: Dut. *krakken*, to crack]: a partial break by which the parts are not wholly separated from one another; a chink or fissure; a crevice; a rent; any violent, sudden, or sharp sound; a smart, quick blow, such as may cause a rent; in *OE.*, a lad or youth: V. to rend; to burst or break partially; to split; to break completely, as a nut; to send forth a loud piercing noise; to echo loudly; to disorder or destroy; to throw out smartly with noise, as to *crack a whip*, to *crack a joke*. CRACK'ING, imp. CRACKED, pp. *krăkt*. ADJ. split; broken; crazed. CRACK'ER, n. a noisy fire-work; a hard biscuit; anything that breaks sharply. CRACK-BRAINED, crazed. TO CRACK A BOTTLE, to open and drink its contents. IN A CRACK, instantly; without delay.—SYN. of 'crack, v.': to shiver; tear; fissure; distress; disorder; derange; snap; puff.

CRACK, v. *krăk* [Gael. *crac*, to talk: OE. *crake*, to talk, to boast: F. slang, *cracher*, to talk: mid. L. *cracāre*, to croak]: in *Scot.*, to talk or converse in a familiar friendly

way; in *OE.*, to brag; to boast; extol; praise: N. a familiar friendly conversation: ADJ. in *familiar language*, having qualities to be boasted of; first-rate, as a *crack horse*, a *crack stud.*

CRACKED HEELS: disease in horses' feet. From careless grooming, washing horses' legs and imperfectly drying them, permitting them to stand in accumulations of filth or exposed to draughts, the skin becomes inflamed, tender, itchy, thickened, and, by and by, cracked. An ichorous, noisome discharge exudes, and lameness often results. In animals with round *gummy* legs, it is sometimes constitutional; underbred horses, with rough hairy fetlocks, present the majority of cases; white heels, being more delicate, are especially affected; while the hind limbs, exposed as they are to filth and cold, suffer most frequently.

Treatment.—Cleanse carefully with tepid water; wash with a diluted solution of Goulard's Extract, or any other mild astringent, or dress occasionally with oxide or zinc ointment. Give, besides, a half-dose of physic, and a few mashes, carrots, swedes, or such laxative food, and where persistent, use diuretics (q.v.). When the affected parts are dry and irritable, poultice and apply glycerine before proceeding with astringents. In cold weather, especially when the horse is heated, avoid washing the legs, except with tepid water and with careful drying.

CRACK'ERS: name in the United States for what are known in Britain as BISCUIT (q.v.). It was the latter part of the 18th century that some bakers in the United States began to produce crackers. They were crude articles of food, made of plain and unsweetened dough, always unflavored, but crisp. The reception which this product received, however, was so favorable that their use in this country not only continued to increase but there was an ever-widening demand from abroad, where the name 'cracker', was dropped, all such products promptly being absorbed into the generic title, 'biscuit.' The name 'cracker' was retained in America, however, until within the past few years, when the term 'biscuit' has been adopted in some cases as a more sweeping classification. The sweetened or fancy cracker is an English invention placed on the American market after 1855.

CRACKLE, v. *krăk'l* [from CRACK 1]: to send out slight cracks or snaps; to repeat small cracks rapidly; to crepitate. CRACKLING, imp. *krăk'lĭng.* CRACKLED, pp. *krăk'ld.* CRACK'LINGS, n. plu. cakes made from the refuse of tallow-melting, used for dogs' food. CRACKLE-WARE: see CRACKLIN. CRACKNEL, n. *krăk'nĕl* [F. *craquelin*, a cracknel]: a small brittle cake or biscuit.

CRACKLIN, *krăk'lĭn:* a kind of chinaware, the glazing of which is purposely cracked in the kiln, as an ornament; often called crackle-ware.

CRACOVIENNE, *krâ-kō-vē-ĕn'* (*krakowiak*): national dance of the Polish peasantry around Cracow. It has a

rather melancholy than lively melody in $\frac{2}{4}$ time, and is accompanied by singing. The pair who lead off the dance often begin with only the music of their own voices, and are soon followed by others, and the charm of the dance consists much in the diverting movements by which they seem to chase and avoid each other. The Poles have a multitude of little ditties of two lines each, adapted to this music and dance, which generally contain some allusion to natural phenomena, accompanied with some slight pleasantry.

CRACOW, *krā'kō* [Pol. *Krakov*]: formerly cap. of a small Polish republic, and anciently cap. of the kingdom of Poland, now an Austrian city; on the left bank of the Vistula, where it becomes a navigable river, in a beautiful plain surrounded by an amphitheatre of gentle hills; lat. 50° 4′ n., long. 19° 52′ e. It contains 46 churches, 15 monasteries, 10 nunneries, and 7 Jewish synagogues. The ancient city of Cracow is a labyrinth of narrow, dark, and deserted streets, but contains many fine specimens of Gothic architecture in its churches and other edifices; and some handsome buildings are also in the more modern suburbs. The old walls have been converted into a promenade. In the midst of the houses rises the castle, a huge building of imposing appearance. The cathedral contains the tombs of many of the Polish kings, and of some of the greatest men of the Polish nation. The university was founded 1364, by Casimir the Great, whose design was carried into effect by Jagello and Hedwig 1401. It was long the centre of light for Poland, but decayed under the influences of the Jesuits, till it ceased to exist. It was reorganized and reopened 1817, and underwent important changes 1833. It has a museum of natural history, a botanic garden, a library of more than 140,000 vols., and many MSS. of great value in connection with Polish history. Its manufactures are unimportant; and its trade, at one time extensive, became, for a period, very limited, but has of late years greatly revived, owing to the extension of its railway communications, which connect it with Vienna, Berlin, Warsaw, and Lemberg. Three miles w. of the city is a vast tumulus to the memory of Kosciusko. It is composed of earth taken from all the patriotic battle-fields of Poland.

Cracow was founded by Krak, Prince of Poland, from whom it derives its name, about 700, became cap. of Poland 1320, and continued to be so till 1609, when that honor was transferred to Warsaw by Sigismund III. It was taken by the Bohemians 1039, by the Mongols 1241, by the Swedes 1655 and 1702, and by the Russians 1768. On the third partition of Poland, 1795, it was assigned to Austria. From 1809 to 15, it formed part of the Duchy of Warsaw. The congress of Vienna established it as a republic, with a small territory containing about 140,000 inhabitants, under the protectorate of Russia, Prussia and Austria. The territory bordered with that of each of these great powers. Internal dissensions between the nobles

and the common people afforded a pretense for interference, and the sympathy shown by the inhabitants of Cracow for the cause of Polish independence in 1830 and following years was made the ground of proceedings, which terminated, 1846, in the annexation of Cracow to the Austrian dominions, a measure alleged to be necessary for the security of the neighboring states, but against which Britain and France protested. Cracow now forms part of the Austrian crown-land of Galicia. An extensive line of fortifications has been constructed around it by the Austrians, with numerous detached forts, and one immense fortress on a height commanding the city, whose outworks extend over a space of about five miles. These works are intended as a barrier against the advance of Russia. Pop. (1900) 91,323, of whom 15,000 are Jews.

CRACOWE, n. *krâ'kō* [from *Cracow*, a city in Poland]: a kind of boot or shoe, with extremely long pointed toes; introduced from Cracow.

CRADLE, n. *krā'dl* [AS. *cradol;* Gael. *creathall*, a cradle —from *creathach*, underwood; Gael. *craidhleag*, a basket, a creel]: a movable bed in which children are rocked to sleep, so named as made of wicker-work; infancy; a framework used for various purposes, as in ship-building; a rocking machine used in gold-mining: V. to lay or rock in a cradle; to nurse tenderly. CRADLING, imp. *krā'dlĭng:* N. the open timbers or ribs of any vaulted ceiling. CRADLED, pp. *krā'dld*, lodged as in a cradle.

CRAFT, n. *krăft* [AS. *cræft*, strength, skill: Icel. *crafter*, craft, force: Ger. *kraft*, strength, power: W. *craffu*, to seize with the understanding]: a trade requiring skill; manual art or skill; fraud; cunning; small sailing-ships. CRAFTSMAN, n. *krăfts'măn*, a mechanic; an artificer. CRAFTSMASTER, n. a skilled artificer. CRAFTY, a. *krăf'tĭ*, artful; cunning CRAF'TILY, ad. *-lĭ*. CRAF'TINESS, n. *-tĭ-nĕs*, dexterity in devising and effecting a purpose; cunning. CRAFT'LESS, a. destitute of craft. HAN'DICRAFT, n. *-ĭ-krăft*, a trade requiring skilled labor: ADJ. of or pertaining to skilled labor.—SYN. of 'crafty': wily; sly; deceitful; subtle; shrewd; fraudulent.

CRAFT, *krâft:* general designation for lighters, hoys, barges, etc., employed in loading or unloading large ships. In the navy, the name *small craft* is sometimes given to vessels commanded by lieutenants, such as cutters, schooners, gun-boats, etc. Also, craft is a term applied by seamen to any vessel whatever.

CRAFT, WILLIAM, a fugitive slave from Macon, Ga., where he hired himself of his owner and worked as a joiner. After years of planning he and his wife Ellen—who was almost white—escaped. Finally, Ellen, wearing men's clothes, and William attending as her servant, they made their way to Boston, where they became parishioners of Theodore Parker (q.v.)., 1850, Oct. 25. When the Crafts had been about two years in Boston, Parker learned that slave-hunters were after them, had them secreted (though

William soon armed himself and went about his business), and warned the slave-hunters for their own safety to leave the city, which they did. The Crafts, never having been formally married, requested Parker to marry them, and he did so November 7, at a colored boarding-house in Boston. On a table some one had laid a Bible and a bowie-knife. The minister gave William the book, for the good of his own soul and of Ellen's, and in his right hand placed the knife, for their defense should need be. The Crafts soon after went to England, bearing a letter from Parker to James Martineau.

CRAFTS, James Mason, American chemist: b. Boston, 1839, March 8. He graduated at the Lawrence Scientific School, Harvard, 1858; studied chemistry and other sciences at Freiburg, Heidelberg, and the Paris Ecole des Mines 1860–5. He was professor of chemistry at Cornell 1869–70, at Massachusetts Institute of Technology, 1870–80, and of organic chemistry at the latter 1892–7. The French government made him a chevalier of the Legion of Honor in 1885, and many of his investigations have been carried on in Paris with Friedel. In 1897 he became president of the Institute of Technology, resigning in 1900. He has published 'Qualitative Analysis' (1869).

CRAFTS, Wilbur Fisk, American Congregational clergyman: b. Fryeburg, Me., 1850, Jan. 12. He was graduated at Wesleyan University in 1869, and Boston University School of Theology in 1872; preached eight years as a Methodist Episcopal minister, but in 1880 joined the Congregational Church. Later he engaged in literary work. He is secretary of the American Sabbath Union, and prominent in reform work; author of *Successful Men; The Sabbath for Man; Successful Men of To-Day;* etc.

CRAG, n. *krăg* [Dut. *kraeghe*, the throat: Icel. *krage*, the collar of a coat; *kraki*, spittle: Ger. *kragen*, a collar, the throat]: in *Scot.*, and *OE.*, the neck; the throat.

CRAG, n. *krăg* [Gael. *creag* and *carraig;* W. *craig*, a rock, W. *careg*, a stone; *caregos*, pebbles]: a steep rugged rock; a cliff; a rocky point or ridge on a hill; in *geol.*, shelly tertiary deposits of the pliocene epoch, used as a fertilizer chiefly developed in Norfolk and Suffolk, characterizing several groups of strata: see Norwich or Mammaliferous Crag: Red Crag. Craggy, a. *krăg'gĭ*, also Cragged, a. *krăg'gĕd*, covered with crags, or broken rocks; rugged: Crag'gedness, n. *-gĕd-nĕs*, fulness of crags or prominent rocks: Crag'giness, n. *-gĭ-nĕs*, state of being craggy: Crag and tail, in *geol.*, peculiar hill conformation, in which a bold and precipitous front exists on the aspect of a hill, while the opposite shows a sloping declivity. Those who first observed this form of the surface, believed it was the effect of currents of water moving in the direction indicated by the C. and T.; latterly, there have been speculations calling in the aid of ice, though not excluding the action of water. Fine examples of this structure occur in and around Edinburgh, where the western current has

left the bold 'Craig' facing the w., and the 'Tail' sloping toward the e.; for example, the castle rock, precipitous and unapproachable on every side except the e., where it has protected the shale and sandstones beds from erosion. The direction and progress of the current can easily be traced; rushing against the hard basalt of the castle rock, it was turned aside, and continued its course eastward, hollowing out the Nor' Loch on one side and the Cowgate valley on the other, until the influence of the rock being lost, and aided by the resistance of the Calton hill and Salisbury craigs, the currents again met in the valley at Holyrood, when the 'tail' entirely disappears.

CRAIG, James Alexander, American Semitic scholar: b. Fitzroy Harbour, Ontario, 1855, March 5. He graduated at McGill University, Montreal, 1880, and took his Ph.D. degree at Leipsic 1886. He was instructor and professor of Biblical languages in Lane Theological Seminary, 1886–90; professor of Old Testament literature and exegesis, Oberlin Theological Seminary 1891; and since 1893 has been professor of Semitic languages and Hellenistic Greek in the University of Michigan. He has published *Inscriptions of Salmanassar, King of Assyria* 859–826 B.C. (1887); *Hebrew Word Manual* 1890); *Assyrian and Babylonian Religious Texts* (1895–7); *Astronomical-Astrological Texts of the Babylonians* (1899).

CRAIG, Sir James Henry, English soldier: b. Gibraltar 1748; d. London 1812, Jan. 12. He entered the army in 1763, became captain of the 47th foot in 1771, came to America in 1774, was wounded at Bunker Hill, was transferred with the 47th to Canada, and distinguished himself in the early part of Burgoyne's advance upon Saratoga. Made major of the 82d, he sailed for Nova Scotia; in 1781 fought in North Carolina; and was promoted successively lieutenant-colonel of the 82d and colonel of the 16th. In 1794 he became adjutant-general to the army in the Netherlands and was promoted major-general. On the conclusion of the war in the Netherlands, he was appointed to command a force to co-operate with the army from India in the capture of the Dutch colony at the Cape of Good Hope. The colony surrendered to him 1795, Sept. 14. He was governor at the Cape in 1795–7, and from 1797 to 1802 was in India. Having been promoted lieutenant-general in 1801, he commanded the troops in Italy and Sicily in 1805–6, operating in conjunction with the Russians against the French. In 1807 he was made local general in America, and captain-general and governor-general of Canada. The French were not well disposed toward the British government, and there were perpetual contentions in the assembly. Craig dismissed two assemblies and he or his council suppressed 'Le Canadien' newspaper. He resigned the government in October 1811, and in 1812 was promoted general.

CRAIG, *krāg*, John: abt. 1512–1600, Dec. 12; b. Scotland; eminent preacher of the Reformation. Having spent some time as a tutor in England, he returned to Scotland

and entered the Dominican order, of which he had not long been a member when he fell under suspicion of heresy, and was cast into prison. On his release, he travelled on the continent; and, after some time, was, through Cardinal Pole's influence, intrusted with the education of the novices in connection with the Dominican order at Bologna. While here, Calvin's *Institutes* fell in his way, and converted him to Protestant doctrines. Having openly avowed the change in his opinions, he was brought before the Inquisition, and sentenced to be burnt—a fate from which he was saved by the mob, on the death of Pope Paul IV., breaking open the prisons in Rome, and setting the prisoners at liberty. Craig escaped to Vienna, and obtained some favor at the court of Maximilian II.; but the news of his being there reached Rome, and the pope demanded his surrender as one condemned for heresy. The emperor, however, instead of complying, gave Craig a safe conduct out of Germany. He returned to Scotland, and was appointed the colleague of John Knox in the parish church of Edinburgh. Thinking the marriage of Queen Mary and Bothwell contrary to the word of God, he boldly refused to proclaim the banns. In 1572, Craig was sent 'to illuminate the dark places' in Forfarshire and Aberdeenshire, and remained in the north till 1579, when he was appointed minister to King James VI. in Edinburgh. He now took a leading part in the affairs of the church, was the compiler of part of the second book of discipline, and the writer of the national covenant signed, 1580, by the king and his household. He was not slow to oppose the proceeding of the court, when he deemed them opposed to Scripture: see the fac-simile edition of Craig's *Short Summe of the whole Catechisme*, of 1581, with Memoir by T. G. Law (1883).

CRAIG, Thomas: abt. 1538–1608, Feb.; b. Scotland: author of the well-known *Treatise on the Feudal Law.* Educated first at St. Andrews, he prosecuted his studies at Paris, and passed as an advocate at the Scottish bar, 1563, Feb., and in that or the following year was appointed justice-depute to Archibald, Earl of Argyle, hereditary justice-gen. of Scotland. In literary pursuits, Craig had distinguished himself above all his contemporaries, and while at the head of the criminal judicature of Scotland he did not neglect the *belles-lettres*, as was evidenced by an epithalamium on the queen's marriage with Darnley, and by a poem on the birth of James I. Besides his work on *Feudal Law*, Craig wrote on the *Succession to the Throne of England;* also a treatise on the union of Scotland and England, and one on *Homage*, vindicating Scotland from the charge of feudal dependence on England; and many poetical pieces. In the latter part of his life, Craig acted as advocate for the Church of Scotland. He seems to have been high in favor with James VI., who wished to confer the honor of knighthood upon him; and when Craig steadily refused, ordered that all persons should address him as if he really had accepted the honor.

CRAIGHILL, *krāg′ĭl*, William Price, American military engineer: b. Charlestown, Va., 1833, July 1. He graduated at West Point 1853; superintended the building of Fort Sumter 1854–5; built the defenses of Pittsburg 1863; and 1865, on 13 March, was brevetted lieutenant-colonel for faithful and meritorious services during the War. Later he was employed on the defenses of New York and Baltimore, and in the improvement of navigation on southern rivers. He became brigadier-general and chief of engineers 10 May 1895, and was retired 1 Feb. 1897.

CRAIGIE, *krāg′ĭ*, Pearl Mary Teresa Richards ('John Oliver Hobbes'), English novelist and dramatist: b. Boston, Mass., 1867, Nov. 3; d. London, Eng., 1906, Aug. 13. She was educated in Paris and London, married R. W. Craigie in England in 1887 and was divorced from him in 1895. Her writings, published under the pseudonym, 'John Oliver Hobbes,' include *Some Emotions and a Moral* (1891); *The Sinner's Comedy* (1892); *A Study in Temptations* (1893); *Journeys End in Lovers Meeting; The Gods, Some Mortals and Lord Wickenham* (1895); *The Herb Moon* (1896); *School for Saints* (1897); *Osborn and Ursyne*, a blank verse tragedy (1899); *The Ambassador*, a play (1898); *Robert Orange* (1900); *The Serious Wooing* (1901).

CRAIGLEITH′ STONE: siliceous sandstone belonging to the carboniferous series, quarried at Craigleith, near Edinburgh, and largely used for building in that city, for which it is admirably adapted by its purity, durability, and the ease with which it can be wrought.

CRAIK, *krāk*, Dinah Maria (Mulock): 1826–1887, Oct. 12; b. Stoke-on-Trent, England: author. She was the daughter of a clergyman of the Established Church, and was left an orphan, with two younger brothers to look after, when a mere child. Her first novel, *The Ogilvies*, was published 1849, and her last finished work was an article written for the *Forum* of New York. A pension of $300 per annum was conferred upon her, 1864. She was married, 1865, to George Lillie Craik, Jr., of the London publishing house of Macmillan & Co. She was a strong advocate of the movement to secure the legalization of a marriage with a deceased wife's sister. Her most popular novel was *John Halifax, Gentleman* (1857), though she regarded *A Life for a Life* (1866), as her best work in literary style and construction. Her published works number over 30 volumes.

CRAIK, George Lillie: 1799–1866; b. Fifeshire, Scotland. He was educated for the ministry at St. Andrew's Univ., but, preferring a literary career, he went to London, 1824. His first work of importance was the *Pursuit of Knowledge under Difficulties* (1831), in the series of publications by the Soc. for the Diffusion of Useful Knowledge. He contributed largely to the *Penny Cyclopædia*. In 1839 Craig became editor of the *Pictorial History of England*, writing some of the most valuable chapters—

among them, *Sketches of the History of Literature and Learning in England from the Norman Conquest to the Present Time* (6 vols. 1844), and *History of British Commerce from the Earliest Times* (3 vols. 1844); and, in the same year, *Bacon, his Writings and Philosophy.* In 1849, Craik was appointed to the chair of history and English literature in Queen's College, Belfast, which he occupied till his death. Craik had an energetic mind; and as a writer he was clear, accurate, and conscientious. His works contained suggestions in politics and social science which were afterward appropriated by, or ascribed to, others; e. g., in the first class, the idea of mutual citizenship; in the second, that of the representation of minorities. Between 1849–52 appeared his *Romance of the Peerage;* 1855, his *Outlines of the History of the English Language;* 1857, *The English of Shakespeare.*

CRAIK, James: 1731–1814, Feb. 6; b. Scotland: physician. He studied medicine and surgery with the intention of serving in the British army; emigrated to Va.; served with Washington in his French and Indian expedition, 1754, and with Braddock, 1755; became a surgeon in the revolutionary army, and was director of the Yorktown hospital; settled near Mount Vernon on the conclusion of peace; and was Washington's family physician.

CRAIL, *krāl*: royal and parliamentary burgh and seaport in the 'East Neuk' of Fifeshire, Scotland, 2 m. s.w of Fifeness, 10 m. s.e. of St. Andrews. Crail was a town of some note in the middle ages, being then called Caryll. There are traces of an old castle and of a priory college. The Established Church (Presb.), though it has undergone many alterations, is still substantially the ancient structure; and the square tower, with the brooch (q.v.) which springs from it, are in their original condition. It was after a sermon preached in this church by Knox, 1559, that his hearers rushed in an infuriated mob to St. Andrews, and burned the magnificent cathedral of the Episcopal metropolis. Abp. Sharp was for some time minister of Crail. There is a small, safe harbor. Crail was formerly the great rendezvous for the herring fishery, and there has been a great revival in this branch of trade of late years. The town has the interest of antiquity, and is pleasantly situated on a bold coast. It is lighted with gas, has good shops and markets, a reading-room, lecture institute, etc. Pop. (1881) 1148.

CRAKE, v. *krāk* [Gael. *crac*, to talk; *cracaire*, a talker: perhaps imitative of the hoarse croak of the crow (see Crake 1 and Crack 2)]: in *OE.*, to brag; to boast; to utter boastingly and offensively: N. a boast; exultation. Cra'king, imp. Craked, pp. *krākt.*

CRAKE, n. *krāk* [Icel. *kraka*, a crow; *krakr*, a raven], (*Crex*): genus of birds of the rail family (*Rallidæ*), differing from the true rails in having the bill shorter than the head and comparatively thick. The wings are armed with a small concealed spine. The name is derived from the

harsh call-note of the male. The best known species is the common Corn-Crake or Land-Rail (*C. pratensis*), the frequent call-note of which is heard from fields of wheat or rye in valleys and low grounds in early summer. The corn-crake is a very pretty bird, of a reddish-brown color, marked with dark-brown in streaks along the middle of the feathers, lighter below; it has rather long legs and long toes; the tail is very short and pointed. It runs very swiftly, so as to be able sometimes to escape from a dog; but flies rather heavily, though it is a bird of passage, seen in Britain only in summer. It visits, in like manner, all northern Europe, and even Iceland, spending the winter on the shores of the Mediterranean and in Africa. Its call-note may be so exactly imitated by passing the edge of the thumb-nail briskly along the points of the teeth of a small comb, that it can thus be decoyed within a short distance, though it is a very shy bird, and many persons who have never seen it are familiar with its cry. Its weight is ordinarily about six ounces. It is highly esteemed for the table. Two or three other species, common in southern Europe, are found chiefly in marshy grounds, and sometimes receive the name of Sora (*Zapornia*). With them is ranked the Carolina Rail or Sora Rail (*C. Carolinus*) of N. America, which spends its winters in the States near the Gulf of Mexico, but migrates northward in summer: it is sometimes seen in vast numbers about marshes and the reedy margins of lakes and rivers, particularly in its migration southward in autumn. Its size is about equal to that of the corn-crake; and its color is very similar, but with mingled short streaks of white. It is much esteemed for the table.—In O. E. the name Crake was applied to the crow.

CRAM, v. *krăm* [AS. *cramman*, to stuff: Icel. *krami*, pressure; *kremja*, to press, to crush: Dan. *kramme*, to crush]: to press or drive in; to fill to excess; to stuff; to eat greedily. Cram′ming, imp. Crammed, pp. *krămd*. The following may be called *polite slang*:—Cram, v. to prepare, in a limited time, for passing an examination by the stuffing in of intellectual food, whether by a tutor called a 'coach.' or by one's own endeavors: N. the information so imparted or acquired. Cramming, n. *krăm′ĭng*, the act of preparing, in a limited time, for passing an examination, by only acquiring that amount of knowledge necessary to answer the questions that may be proposed. Cram′mer, n. one who crams.

CRAMBE, *krăm′bē*: genus of plants of the nat. ord. *Cruciferæ*; having a pouch (*silicle*) of two unequal joints, of which the upper is globose and one-seeded, the lower abortive. The cotyledons (q.v.) are conduplicate. The species, not very numerous, are scattered over the world. One is a native of Britain, *C. maritima*, the well-known Sea-Kale (q.v.). Another, *C. Tartarica*, with much divided leaves and a great fleshy root, native of Hungary and central Europe and Asia, is sometimes called Tartar Bread; and its root is eaten in the countries of which it is

a native, either boiled, or more generally peeled and sliced with oil, vinegar, and salt.

CRAMBIDES, n. plu. *krăm'bĭ-dēs* [L. *crambus*, and *-ides*]: a group of moths, tribe *Pyralidina*. There are four families: (1) *Eudoreidæ*, (2) *Galleridæ*, (3) *Phycidæ*, (4) *Crambidæ*. CRAMBUS, *krăm'bus:* genus of moths, typical of the family *Crambidæ*.

CRAMBO, n. *krăm'bō* [probably from *cram:* comp. Gael. *crom*, crooked]: a play in which one person gives a word and another finds a rhyme; a word rhyming with another: ADJ. in *Scot.*, crooked, as a 'crambo-jingle.'

CRAMP, n. *krămp* [Dut. *krampe;* F. *crampon*, a hook: OF. *crampe*—from Ger. *krampf*, a spasm, a cramp: Bret. *kraban*, a claw: It. *granfo*, contraction, drawing together: comp. Gael. *crom*, crooked—*lit.*, that which contracts or draws in]: a painful contraction of a muscle, particularly of the leg or foot; a spasm; restraint; a short piece of iron bent at the ends: V. to contract or draw in; to pain with the cramp or spasms; to restrain or confine; to fasten with a cramp-iron. CRAMP'ING, imp. CRAMPED, pp. *krămt:* ADJ. packed or squeezed up into insufficient room. CRAMPOONS, n. plu. *krăm-pôns'*, also CRAMP-IRONS, hooked pieces of iron for raising stones, etc.; in *mil.*, irons fastened to the feet of a storming-party to assist in scaling walls. CRAMPONS, n. plu. *krăm'pŏns*, in *bot.*, the roots which serve as supports to certain climbers, as in the ivy. CRAMP-FISH, the torpedo-fish, which causes a numbness in those who touch it.

CRAMP: irregular, involuntary, and painful contraction of a voluntary muscle, without insensibility or other disturbance of the general system. Cramp is often the effect of cold, and has proved fatal to swimmers by disabling them suddenly in the water. Cramp of the calf of the leg occurs not infrequently at night, the sharp pain waking the sufferer. The contraction is local, the affected part being felt as a hard lump. Except for the pain the condition is of no particular importance,and readily removed by warmth and friction, with regulated movement of the muscles affected. Cramps are a distressing symptom in cholera (q. v.), in which disease it has been proposed to treat them by applying a tight bandage or tourniquet (q. v.) to the affected limbs: see SPASM.

CRAMP RINGS: rings supposed to cure cramp and the 'falling-sickness.' They are said to have originated as far back as the middle of the 11th c., in a ring presented by a pilgrim to Edward the Confessor, which, after that ruler's death, was preserved as a relic in Westminster Abbey, and was applied for the cure of epilepsy and cramp. Hence appears to have arisen the belief that rings blessed by English sovereigns were efficacious in such cases; and the custom of blessing for distribution large numbers of cramp rings on Good Friday continued to the time of Queen Mary. Lord Berners, ambassador to Spain in Henry VIII.'s time, writes from Saragossa to Cardinal Wolsey:

'If your grace remember me with some crampe ryngs ye shall doo a thing muche looked for; and I trust to bestow thaym well with Goddes grace.' The metal of which the rings were composed was what formed the king's offering to the cross on Good Friday, usually either gold or silver. The superstitious belief in the curative property of certain rings lingers in some less enlightened English counties.

CRAMPTON, Thomas Russell, English engineer: b. Broadstairs, Kent 1816, Aug. 6; d. London, 1888, March 19. He received excellent training in engineering, and during 1842–8 made many improvements in locomotive machinery, and in 1873 designed and patented the engine which bears his name. 'The characteristic features of the Crampton engine are a long boiler, outside cylinders set in the middle of the engine's length, and large driving wheels placed quite in the rear of the driving box.' Napoleon III. made him an officer of the Legion of Honor for this invention. In 1851 he laid the first practical submarine cable between Dover and Calais, his best piece of professional work. Among other works carried out either wholly or in part by him were the Berlin waterworks; the Smyrna railway; and the Varna railway. He also invented a rotary dust-fuel furnace, and an automatic hydraulic tunnel boring machine. The outside fire-box shells on many modern engines are still known as Crampton's.

CRAN, n. *krăn* [Gael. *crann*, a barrel full of fresh herrings]: the quantity of fresh herrings which will fill a barrel of the capacity of about 37½ gallons.

CRAN, n. *krăn* [Scot. (see Crane)]: in *Scot.*, a crooked and clawed iron instrument laid over a fire to support a pot or kettle, etc., while cooking—so named from its supposed likeness to a crane.

CRANACH, *kran'ak* or *krâ'nâch*, Lucas: 1472–1553, Oct. 16; b. German painter in the bishopric of Bamberg: Little is known of his early life, except that he was instructed in art by his father—that he visited Palestine 1493 with the Elector Frederick the Wise of Saxony, who made him his court painter 1504, at which period he was in high repute, especially for his facility. In 1508, the elector made him a grant of armorial bearings, having for crest a winged serpent. He made a journey into the Netherlands 1509, and there drew a picture of Charles V.—the future emperor—then nine years old. Cranach seems to have acted as *factotum* at the court of the elector and his two successors, preparing for and directing the ceremonies and festivities, and knew besides how to follow other lucrative trades. In 1520 he bought an apothecary's business at Wittenberg, where he was also a bookseller and papermaker, became councillor and chamberlain, and was twice chosen burgomaster of the town.

Cranach was closely connected with the early reformers. He was the intimate friend of Luther, whose picture he several times painted. In 1550 he went to Augsburg to share the imprisonment of the elector, and returned with

him to Saxony 1552. Cranach died at Weimar, in the 81st year of his age, and was buried in the court church there. He had two sons, one of whom, Lucas, was known by the name of 'the young Cranach,' an excellent colorist and portrait-painter.

Cranach left an unusually large number of authentic pictures—indeed, he painted beyond his powers. He excelled in portraits, in painting animals, in fabulous and droll pieces, and was an excellent colorist; but failed in form, grace, and unity, and in the higher walks of art. His last and greatest work is an altar-piece in the church of Weimar—a mystical representation of the crucifixion. His peculiar humor is best seen in such pictures as his *Samson and Delilah* and his sylvan scene containing *Apollo and Diana.*

CRANBERRY, n. *krăn'bĕr-rĭ* [Ger. *kranbeere*—so named from the supposed resemblance of its slender stalk to the long legs and neck of a crane], (*Oxycoccus*): genus of small evergreen shrubs of the nat. ord. *Vaccineæ*, distinguished from the genus Vaccinium (see WHORTLEBERRY) by the wheel-shaped corolla, with segments rolled back and the filaments leaning to the pistil. The species are few, natives of the colder regions of the n. hemisphere. The fruit is acid, and is in great request for making tarts. The Common Cranberry (*O. palustris*, formerly *Vaccinium Oxycoccos*), is a native of northern Europe, Asia, and America. It grows in peaty bogs and marshy grounds, and is a small wiry shrub with creeping thread-like branches, and small oval leaves rolled back at the edges. The blossoms are small but beautiful, of a deep flesh color. Large quantities of the fruit are collected in some places, though the draining of bogs has made it scarce where it was plentiful. In Germany it is collected by means of a wooden comb, and preserved with sugar. In England, cranberries are often preserved in bottles closely corked or filled with pure water, in which they may be kept for a long time. They are an excellent addition to sea stores. Wine is made from them in Siberia, and a beverage made from them is sold in the streets of St. Petersburg.—The AMERICAN CRANBERRY (*O. macrocarpa*) is a much larger and more upright plant, with leaves much larger and less rolled back at the margin. The berries also are larger and of a brighter red. It is a native of N. America, frequent in Canada, and as far s. as Virginia, growing in bogs, and particularly in elevated situations and where the soil is sandy. The berries are collected by the means of a rake. Large quantities are exported to Europe. Both kinds may be cultivated in gardens, in a peat-soil kept very moist or round the margin of a pond, and the produce of a small space properly managed is so great so as to make the culture very profitable.—The berries of the red whortleberry (*Vaccinium vitis idaea*) are sold under the name of cranberries in some places in Scotland, and are used in the same way.—A third species of cranberry (*O. erecta*, formerly *Vaccinium erythrocarpon*), native of lofty mountains in Virginia and Carolina, is a

shrub two ft. high, and with a habit more like that of the whortleberries than of the other cranberries; it has a fruit remarkable for transparency and of exquisite flavor, and appears to deserve attention and cultivation. The TASMANIAN CRANBERRY is the fruit of *Astroloma humifusum*, a little shrub with trailing stems, leaves somewhat resembling those of juniper, and beautiful scarlet blossoms, found in all parts of Van Diemen's Land. It belongs to the nat. ord. *Epacridaceæ*. The fruit is of a green or whitish color, sometimes slightly red, about the size of a black currant, and consists of a viscid apple-flavored pulp, inclosing a large seed.—*Styphelia adscendens*, a small prostrate Australian shrub of the same nat. ord., has a similar fruit; and in New South Wales the name cranberry is given likewise to the red acid berries of *Lissanthe sapida*, a low evergreen shrub, with small white flowers, also belonging to *Epacridaceæ*.

CRANBROOK, *krăn'brûk:* small town in the s. of Kent, England, 30 m. s.w. of Canterbury; near the Crane, on an outlying ridge of the Hastings sand formation; the chief village of the Weald. It has a large hop business. It was the centre of the clothing manufacture, introduced by the Flemings in the time of Edward III.; but this branch of industry has long since disappeared. Pop. of parish, 4,216.

CRANCH, v. *krănsh:* see CRAUNCH.

CRANCH, CHRISTOPHER PEARSE, American artist and poet: b. Alexandria, Va., 1815, March 8; d. Cambridge, Mass., 1892, Jan. 20. He was a son of William Cranch (q.v.). He studied at Columbian University, Washington, D. C.; was graduated at the Harvard Divinity School 1835; preached in Unitarian pulpits for a few years, and then gave himself up entirely to painting and poetry. He studied in Italy 1846–8, 1853–63, when he returned to America and was elected a member of the National Academy, but exhibited nothing after 1871. He was an intimate friend of Lowell and Longfellow; a man of versatile if not commanding talent; and one whose friendship was highly cherished by the few favored with it. Some of the best known of his paintings are: *Val de Moline, Amalfi, Italy* (1869); *Venice* (1870); and *Venetian Fishing Boats* (1871). His well-known poem *Thought* appeared in *The Dial* (1840). His published works include: *Poems* (1844); *The Last of the Huggermuggers* (1856); *Kobboltozo* (1857); a blank verse translation of the *Æneid* (1872); *Satan: a Libretto* (1874); *The Bird and the Bell, and Other Poems* (1875; 2d ed. 1890); *Ariel and Caliban* (1887).

CRANCH, WILLIAM, LL.D.: 1769, July 17—1855, Sept. 1; b. Weymouth, Mass.: jurist. He graduated at Harvard 1787; was admitted to the bar 1790; was appointed an associate judge of the U. S. circuit court for the Dist. of Col. 1801, Feb. 27; and was appointed chief justice of that court 1805. He held this office till his death, and during a period of over half a century had only two de-

cisions overruled by the supreme court. His reports of cases decided in the circuit court 1801–41, were published in 6 vols. 8 vo; and those of the U. S. supreme court 1801–15, in 9 vols., with supplementary issues in 1835.

CRANE, n. *krān* [AS. *cran;* Ger. *kranich;* Dut. *kraan*, a crane: W. *garan*, a crane, a shank—from *gar*, a leg: comp. Gael. *crann*, a tree, the mast of a ship]: a wading-bird having long legs and a long neck; a machine for raising and removing heavy goods; a bent metal tube with a stop for drawing off liquors; a siphon. CRA'NAGE, n. *-nāj*, the dues paid for the use of a crane; liberty of using a crane. CRANE'S BILL, n. the wild geranium of many species, so named from the seed-vessels resembling the beak or bill of a crane; a popular name for the genera and species of the ord. *Geranĭācĕæ* (see GERANIUM): long-beaked pincers used by surgeons.

CRANE (*Grus*), genus of birds of the order *Grallatores*, type of the family *Gruidæ*. This family differs from herons, bitterns, storks, etc., in having the hind-toe higher on the leg than the front toes. It consists also of birds less addicted to marshy places, and which feed not only on animal, but, to a considerable extent, on vegetable food. They all are large birds, long legged, long necked, and of powerful wing, though their wings are rounded and not elongated; some of them performing great migrations, and flying at a prodigious height in the air. One of these is the COMMON CRANE (*G. cinerea*), which breeds in northern Europe and Asia, retiring in winter to tropical or sub-tropical regions. Flocks of cranes periodically pass over southern and central Europe, uttering their loud harsh cries in the air, and occasionally alighting to seek food in fields or marshes. The crane when standing, is about four ft. in height; the prevailing color is ash- gray, the face and throat nearly black, the wing primaries black. The tertial feathers of the wings are elongated reaching beyond the ends of the primaries, and their webs are unconnected; they are varied and tipped with bluish-black, and are the well-known plumes once much used in ornamental head-dresses. The crane feeds on roots. seeds, etc., as well as on worms, insects, reptiles, and even some of the smallest quadrupeds. It is much esteemed for the table.—There are several other species of crane. The WHOOPING CRANE (*G. Americana*) is considerably larger than the common crane, which it otherwise much resembles except in color; its plumage, in its adult state, is pure white, the tips of the wings black. It spends the winter in the southern parts of N. America. In summer it migrates far northward, but rather in the interior than the eastern parts of the continent. To the crane family belong also the Demoiselles (q.v.), with which, rather than with the true cranes, the Balearic cranes or Balearicans are ranked. Cranes use their bill as a dagger, and when wounded are dangerous to the eyes of a rash assailant.

CRANE: machine for lifting weights. Cranes are of various kinds; the most common consist of an upright re-

volving shaft, with a projecting arm or jib, having a fixed pulley at the extremity, over which is passed one end of the rope or chain to receive the weight, the other end being attached to a cylinder with wheel and pinion, by means of which the weight is raised to the required height. By the lateral revolving motion of the upright portion, the load can be deposited on any spot within the sweep of the jib.

CRANE, Bruce, American painter: b. New York 1857. He studied under A. H. Wyant, and paints chiefly landscapes, using American subjects. Among his works are: *An Old Mill Pond on Long Island; On Shrewsbury River; Winter; Harvest Field; Signs of Spring;* and *Peace at Night.* He is a member of the American Society of Artists; and won a medal at the Pan-American Exposition in 1901.

CRANE, Stephen, American novelist and poet: b. Newark, N. J., 1870, Nov. 1; d. Badenweiler, Germany, 1900, June 5. *The Black Riders and Other Lines* (1895), a collection of verse, was his earliest volume, followed by his *Red Badge of Courage* (1896) which excited a widespread interest in its author and seemed to presage a career of more than ordinary brilliancy. His later works are: *Maggie: a Girl of the Streets* (1896), *George's Mother* (1896); *The Little Regiment* (1897); *The Third Violet* (1897); *The Open Boat* (1898); *The Eternal Patience* (1898); *Wounds in the Rain* (1900); *Great Battles of the World* (1901) *Whilomville Stories.* During the Spanish-American war he was a reporter in Cuba for the New York *Journal.*

CRANE, Walter, English artist and writer: b. Liverpool, 1845, Aug. 15. He became apprentice to W. J. Linton, the well-known wood engraver, in 1859, and soon began to illustrate books. In 1888 he became first president of the Arts and Crafts Exhibition Society. In the following year he became associate of the Royal Society of Painters in Water Colors, and from 1893 till 1896 was director of design in the Manchester Municipal School of Art. Mr. Crane's principal publications are: *Picture Books* (1865–76); *Baby's Opera* (1877); *Grimm's Household Stories* (1882); *The First of May* (1883); *The Sirens Three; a Poem* (1885); *Flora's Feast* (1889); *Queen Summer* (1891); *Renascence* (1891); *Claims of Decorative Art* (1892); *Decorative Illustrations of Books* (1896); *Spenser's Faerie Queene* (1895–7); and *Shepherd's Calendar* (1897). Among his pictures are: *Fate of Persephone* (1878); *Europa* (1881); *The Bridge of Life* (1884); *Freedom* (1885); *La Belle Dame Sans Merci, England's Emblem* (1895); *The Rainbow and the Wave* (1896); *Britannia's Vision* (1897); and the *World's Conquerors* (1898). Mr. Crane belongs essentially to the imaginative and poetic school so prominent among recent artists. He has prominently identified himself with the Socialist movement as lecturer, writer, and artist.

CRANE, William Henry, American actor: b. Leicester, Mass., 1845. He made his first appearance on the stage when 18 years old and soon won recognition as a comedian.

His role in *The Henrietta* in which he was associated with Stuart Robson, was his first great success. His first starring tour after dissolving connection with Robson was undertaken in 1889, when he appeared in *The Senator*. He played *David Harum* in 1900 and attained great popularity in that role.

CRANE, Winthrop Murray, American paper manufacturer: b. Dalton, Mass., 1853, April 27. He was lieutenant-governor of Massachusetts 1897–9, and governor of the State 1900–2. In December 1901 he was offered, but declined, the position of secretary of the treasury. In 1904, upon the death of Senator Hoar, he was appointed to the Senate, in Jan. 1905, elected to fill his unexpired term, and re-elected in 1907.

CRANE-FLY (*Tipula*): genus of dipterous (two-winged) insects of the family *Tipulidæ*, to the whole of which the name Crane-fly is often extended, nearly allied to the Gnat family (*Culicidæ*), which they resemble in their beautifully feathered and tufted antennæ, but from which they differ in having a comparatively short proboscis. The true crane-flies are also of comparatively large size. They have lanceolate spreading wings, and very long legs. One species (*T. oleracea*) is the well-known *Daddy* (or *Harry*, or *Peter*) *Longlegs*. This and other species abound in arable lands, gardens, meadows, etc., in summer; and their larvæ —remarkably tough worms without legs, sometimes confounded with wire-worms by farmers—are extremely destructive to crops of various kinds, devouring the roots of corn and pasture grasses, potatoes, turnips, and almost all the plants ordinarily cultivated either in field or garden. Rolling of fields is useful in killing them; and soot, salt, and other applications are employed in gardens.

CRANGANORE, *krân-gan-ōr′* (properly *Kodungalúr*): town in Cochin state, on the w. coast of s. India: on one of the openings of the great Cochin backwater, 18 m. n. of Cochin Town. The place is notable historically. Here the apostle Thomas is said to have labored. Possessed by the Portuguese, it was taken from them by the Dutch about 1663; and after being purchased by the rajah of Travancore 1789, and wrested from him by Tippoo Sultan 1790, it was conceded by the latter to the British. But the more ancient history of the place is still more interesting, for here have existed, from the 4th and 5th c. respectively, congregations of Jews and Christians. Pop. abt. 10,000.

CRANGON, n. *krăng′gŏn* [Gr. *krangōn*, a shrimp]: genus of crustaceans, typical of the family *Crangonidæ*. Crangonidæ n. plu. *krang-ŏn-ĭ-dē* [L. *crangon*, and *-idæ*]: family of macrourous (long-tailed) crustaceans: see Shrimp.

CRANIA, n. *krā′nĭ-a* [L.L. *cranium*]: genus of mollusks, typical of the family *Craniadæ*. Cra′niadæ, *-a-dē*, or Cra′niidæ, *-ĭ-dē*, family of mollusks, class *Brachiopoda* (q. v.).

CRANICHIDÆ, n. plu. *krā-nich′-ĭ-dē* [L. *cranichis*, and *idæ*]: in *bot.*, family of orchids, tribe *Neotteæ*.

CRANIUM, n. *krā′nĭ-ŭm*, CRA′NIA, n. plu. *-nĭ â* [Gr. *krānĭon;* mid. L. *crānĭum*, the skull]: the bony or cartilaginous case containing the brain, the skull: see SKULL. CRANIAL, a. *krā′nĭ-ăl*, of or pertaining to the skull. CRA′NIA, n. plu. *-â* [Gr. *kranos*, a helmet or headpiece]: a genus of small brachiopods having the lower valve flat and the upper limpet-like or helmet-shaped. CRA′NIOL′OGY, n. *-ŏl′ŏ jĭ* [Gr. *logos*, a discourse]: the science that treats of the skull in connection with the faculties and propensities of animals; phrenology. CRA′NIOL′OGIST, n. *-jĭst*, one skilled in the study of the skull. CRA′NIOLOG′ICAL, a. *-lŏj′ĭ-kăl*, pertaining to the study of the skull. CRA′NIOG′NOMY, n. *-ŏg′nŏ-mĭ* [Gr. *gnomon*, an index or interpreter]: practical phrenology. CRA′NIOM′ETER, n. *-ŏm′ĕ-tĕr* [Gr. *metron*, a. measure]: an instrument for measuring skulls. Dr. Morton gives the following as the average results in cubic inches of numerous measurements of skulls: European, 87; Malay, 85; Negro, 83; Mongol, 82; Ancient Egyptian, 80; Americans, 79; Ancient Peruvian, 75–79. Prof. Huxley says that the most capacious European skull has a capacity of 114 cu. in.; the smallest 55 cu. in. Schaffhausen finds Hindu skulls of 46 cubic inches. CRA′NIOM′ETRY, n. *ŏm′ĕ-trĭ*, the art of measuring skulls. CRA′NIOMET′RICAL, a. *-mĕt′rĭ-kăl*. CRA′NIOS′COPY, n. *-ŏs′kŏ-pĭ* [Gr. *skopĕō*, I see or look]: the scientific examination of the skull. CRANIOTOMY, n. *krā′-nĭ-ŏtŏ-mĭ* [Gr. *tomē*, a cutting]: the operation of opening the skull.

CRANK, n. *krăngk* [Dut. *kronkelen*, to twist, to bend: Lap. *kranket*, to crook, to bend: Dan. *kringel*, crooked: prov. Eng. *cringle-crangle*, zigzag]: anything bent or turned; in a *machine*, an iron axis bent and jointed like an arm, used for changing a rotary motion into a horizontal or perpendicular one, or the contrary; a metal brace. CRANK-BRACE, the usual form of brace, which has a bent shank by which it is rotated. CRANKED TOOL, a tool made to embrace the rest, by which it is prevented from slipping away from the work. CRANKLE, v. *krăng′kl*, to run into folds or wrinkles; to break into unequal surfaces. CRANKLING, imp. *krăng′klĭng*. CRANKLED, pp. *krăng′kld*.

CRANK, a. *krăngk*, or CRANKY, a. *krăng′kĭ* [Icel. *kranga*, to stagger, to zigzag: Dut. *krengen*, to press down a vessel on its side: Lap. *kranket*, to bend]: inclined to heel over, as a ship that wants steadiness; liable to be upset. CRANK′NESS, n. *-nĕs*, or CRANK′INESS, n. *-kĭ-nĕs*, liability to be overset, as a ship that wants steadiness. CRANK′Y, a. applied to a man or woman aged and feeble; having a complaining tone; peevish; querulous. CRANKS, n. plu. *krăngks*, conceits by changing or twisting a word, as in *quips* and *cranks*.

CRANK, a. *krăngk* [Ger. *krank*, sick]: in *OE*, sick; ill; sprightly; healthy: N. a sick person; an invalid: V. to run in and out; to move to and fro; to turn. CRANK′ING, imp.

CRANKED, pp. *krănkt.* CRANKS, n. plu. pains; aches. *Note*—This entry is closely connected with the preceding. The opposite meaning of *crank*—viz., 'sick' and 'healthy' —may be explained from its primary meaning, 'the unsteady movements of a ship, especially when unballasted.' Lightness, giddiness, and unsteady movements are characteristics of sickness, just as 'light-headedness' and a 'never do I care' are characteristics in the joyous unrestrained movements of the young in health.

CRANK, in Machinery: arm or bend on an axle or shaft, which may be driven by a connecting-rod or by the hand, its use being to convert an alternating straight motion into a continuous revolution. A crank may have part of the shaft on both sides, so that one rod may drive two wheels, There are two positions in a crank in which the connecting-rod exercises no power whatever— viz., when the arm of the crank, is parallel to the connecting-rod, and again when the crank is at the opposite point of its course. A push or pull of the rod in such circumstances can only press the shaft against its bearings. The effect is greatest when the rod and the crank-arm are at right angles, and it decreases gradually on both sides of that position, until at the top and bottom it is reduced to nothing. In order to carry the crank over these *dead points*, as they are called, a fly-wheel is fixed on the shaft; this receives part of the force of the rod while at its best, acts as a reservoir, and by its stored up momentum carries the shaft round when the rod is powerless.

CRANMER, *krăn'mėr*, THOMAS: 1489, July 2—1556, Mar. 21; b. Aslacton, county of Nottingham: one of the chief reformers of the English church, first Protestant Archbishop of Canterbury. He was descended from an old Norman family, said to have come into England with William the Conqueror. In his 14th year, he went to Jesus College, Cambridge, of which he was elected a fellow 1510. He devoted himself diligently to the study of the learned languages, and of Scripture. His mind seems to have been early interested in the writings of Erasmus, Luther, and Le Fevre, and especially in their interpretations of Scripture. In his 23rd year, he married, and so lost his fellowship; but his wife dying about a year after marriage, he was restored to it by his college. In 1523, he took his degree D.D., and was appointed lecturer on theology. In 1528, during the prevalence of the sweating sickness in Cambridge, he retired with two pupils to Waltham Abbey: and Henry VIII., in company with Gardiner and Fox, afterward bishops of Winchester and Hereford, happening to be in the neighborhood, the event proved a turning-point in the life of Cranmer. The king was then seriously concerned about his divorce from Catharine of Aragon; and Cranmer, in conversation on the subject with Gardiner and Fox, suggested that the question should be 'tried according to the word of God.' Fox having mentioned this suggestion to the king, Henry was greatly pleased, and 'swore by the mother of God, that man hath

the right sow by the ear.' From this time, Henry never lost sight of Cranmer. He was asked to reduce his suggestion to writing, and to have it submitted to the European universities. After this he was appointed archdeacon of Taunton, and one of the royal chaplains. He was also sent to Rome on a special embassy about the divorce, but met little success. Subsequently, he was dispatched to the emperor on the same errand, and while in Germany, 1532, he married a second time, a niece of the German divine, Osiander. Shortly afterward, on the death of Abp. Warham, he was recalled to fill the vacant see. Under his auspices, Henry's divorce was speedily carried through, and Cranmer married the king to Anne Boleyn 1533, May 28. In Anne's subsequent disgrace, and again, in the affair of Anne of Cleves Cranmer took a part not creditable to him. His position was no doubt difficult; but his character was naturally pliable and timid, rather than resolved and consistent. The same spirit characterizes the measures of religious reform promoted by him. On one hand, he joined actively with Henry in restricting the power of the pope, and in suppressing the monasteries; but on the other hand, he was no less active in persecuting men like Frith, Forrest, and others, who on, matters of religious faith, were disposed to advance further than himself or the king. He did what he could, however, to resist the reactionary movement in 1539, and which is known by the institution of the 'Six Articles.' He was also instrumental in promoting the translation and circulation of the Scriptures. On Henry' VIII.'s death, Cranmer was appointed one of the regents of the kingdom, and with Latimer and others, largely contributed to the advance of the Protestant cause during the reign of Edward. He assisted in the compilation of the service-book and the Articles of Religion. The latter are said to have been chiefly composed by him. He was also the author of four of the Homilies.

On the accession of Mary, he was committed to the Tower with Latimer and Ridley, In 1554, Mar., they were removed to Oxford, and confined there in the common prison, called the Bocardo. Latimer and Ridley bore their cruel fate with magnanimous courage; but the spirit and principles of Cranmer temporarily gave way under the severity of his sufferings. He was induced, in the hope of saving his life, to sign no fewer than six recantations; but his enemies were determined to be satisfied by nothing short of his death; and he suffered martyrdom, as his fellow-reformers had done, opposite Baliol College. His courage returned at the end; and he died protesting his repentance for his unworthy weakness in changing his faith, and showing an unexpected fortitude in the midst of the flames.

CRANNOGS, n. *krăn'nogs* [Irish]: name in Ireland and in Scotland for the fortified islands in lakes which were in common use as dwelling places and places of refuge among the Celtic inhabitants. The etymology of the word (sometimes written *crannoge*) is uncertain, but it is believed to

refer to the timber which was employed either in the fortification of the island, or in the construction of the houses upon it. See LAKE DWELLINGS.

CRANNY, n. *krăn'nĭ* [F. *cran*, a notch, a mark: Bav. *krinnen;* Ger. *krinne*, a notch, a rent]: an open crack; a chin; a cleft; a crevice; a retired or secret place. CRAN'-NIED, a. *-nĭd*, full of chinks.

CRANTOR, (flourished toward the end of the 4th c. B.C.), a disciple of Plato whose doctrines he taught. He was a member of the First Academy. Little is known in detail about his work, though Cicero refers to a writing of his upon 'Sorrow.'

CRANTS, n. plu. *krănts* [Ger. *krantz;* Sw. *krans*, a crown, a garland]: in *Shakes.*, the chaplet or wreath carried at a maiden's funeral, and placed on her grave.

CRANSTON: township, Providence co., R. I.; 4 m. s. of Providence; on the Providence, Hartford and Fishkill railroad. It contains several thriving villages, and is noted as the seat of important print-works. There is extensive manufacture of cotton and of machinery. Pop. (1910) 15,000.

CRAPE, n. *krāp* [F. *crêpe*, a tissue of fine silk twisted to form a series of minute wrinkles; *crespe*, curled—from L. *crispus*, crisped, curled]: thin fabric, of raw silk, which has been tightly twisted, without removing the viscous matter with which it is covered when spun by the worm. It is simply woven as a thin gauze, then dressed with a thick solution of gum, which in drying causes the threads partially to untwist, and thus gives a wrinkled and rough appearance to the fabric. It is frequently dyed black, for mourning apparel.

CRAPELET, GEORGES ADRIEN, French printer and author: b. Paris, 1789, June 13; d. Nizza 1842, Dec. 11. He maintained the reputation of his father, Charles Crapelet, and the works which he published are esteemed for correctness and beauty of execution. Among them there are editions of La Fontaine, of Montesquieu, Voltaire, Rousseau, and Sismondi's *Histoire des Français.* The idea of publishing a collection under the title of *Anciens monuments de l'histoire de la langue Française* originated with him. He wrote an account of the progress of the art of printing in France and Italy in the 16th century, and its influence upon literature (8vo. 1836), and was the author of *Souvenirs of London*, etc.

CRAPLE, n. *krăp'l* [Ger. *krappeln*, to seize (see GRAPPLE and GRAB)]: in *OE.*, a claw.

CRAPNEL, n. *krăp'nĕl:* see GRAPNEL.

CRAPULOUS, a. *krăp'ū-lŭs* [L. *crapŭlōsus*, drunken—from *crapŭla*, excessive drinking, a surfeit]: excessively drunk; sick from indulgence in liquor. CRAPULA, n. *krăp'-ū-lă*, the feeling of surfeit and sickness in the morning after a night of hard drinking.

CRAS-CROM: ancient and rude instrument of agriculture in the Highlands, consisting, as its name in Gaelic im-

ports, of a crooked stick shod with iron, with a small projecting bar to rest the foot upon.

CRASH, n. *krăsh* [an imitation of the noise made by a number of things breaking—another form of *clash:* Sw. *krasa;* Dan. *krase,* to crackle]: a noise as of things falling and breaking at once; an unbleached and unglazed linen fabric without twill or pattern; a violent mixed noise: V. to give out a confused rough noise. CRASH'ING, imp. CRASHED, pp. *krăsht.*

CRASHAW, *krash'aw,* RICHARD: b. London; son of a clergyman in the English Church; d. abt. 1650: a poet whose devotional strains exhibit imagination of a high order, with great copiousness and beauty of language. He was educated at the Charter-house, and at Cambridge, where he obtained a fellowship 1637. He entered the ministry about 1641, it is said, and became an earnest and eloquent preacher; but in 1644 he was ejected from his fellowship by the parliament, for refusing to take the Covenant. He went to France, adopted the Rom. Cath. faith, and suffered great pecuniary distress, until, through Cowley's influence, he was introduced to Queen Henrietta Maria, who recommended him to certain dignitaries of the Church in Italy. He soon obtained a secretaryship to one of the cardinals at Rome, and was made a canon of the church of Loretto. In this office he died. In 1634, C. published a volume of Latin poems, in which appeared the famous line, sometimes attributed to Dryden and others, relative to the miracle of the water being turned into wine,

'*Nympha pudica Deum vidit et erubuit.*'
'The modest water saw its God and blushed.'

In 1646 appeared his *Steps to the Temple, The Delights of the Muses,* and *Carmen Deo Nostro,* in which there is much fervid poetry. C. greatly resembles George Herbert in his cast of thought, and is not inferior to him in richness of fancy, though with more exaggeration and conceit.

CRASIS, n. *krā'sĭs* [Gr. *krāsis,* a mixture]: healthy constitution of the blood and humors; in *gram.,* the union of two vowels into one syllable.

CRASPEDA, n. plu. *krăs'pĕ-dă* [Gr. *kras'pĕdon,* border or tassel]: the long cords containing thread-cells, which are attached to the free margins of the mesenteries of a sea-anemone.

CRASS, a. *krăs* [F. *crasse*—from L. *crassus,* thick, dense]: thick; dense; coarse or gross: N. a large species of sea-anemone. CRAS'SITUDE, n. *-sĭ-tūd,* grossness; thickness; stupidity: also CRASS'NESS, n.

CRASSAMENTUM, n. *krăs'să-mĕn'tŭm,* or CRAS'SAMENT, n., and CRAS'SIMENT, n. [L. *crassamen'tum,* dregs, grounds—from *crassus,* thick]: the clot of blood; dregs or sediment of a fluid.

CRASSATELLA, n. *krăs-sa tĕl'la* [dim of L. *crassus,* thick]: genus of mollusks, family *Cyprinidæ.*

CRASSULA, n. *krăs'sū-la* [dim. of L. *crassus,* thick

Named from the thick fleshy leaves and stems]: genus of hypogynous exogens, typical of the order *Crassulaceæ* (q.v.). CRASSULEA, *krăs-sū'lĕ-æ*, tribe of *Crassulaceæ*.

CRASSULACEÆ, *krăs-ū-lā'sē-ē :* nat. ord. of exogenous plants, some shrubby, some herbaceous, all remarkable for succulency. About 300 species are known, among which are house-leeks, stone-crops, rose-root, etc. They are widely distributed over the world, but s. Africa particularly abounds in them. Most of them grow in dry places, and derive their nourishment from the air rather than from the soil, their roots seeming intended chiefly to fix them to the spot. Many of them are cultivated in green-houses, more for their grotesque forms than the beauty of their flowers. Some are refrigerant, and one or two are even used as food; others, on account of the tannin which they contain, are astringent; some are acrid.

CRASSUS, *kras'us*: surname of several old Roman families, among which that of the Licinii was most remarkable.

CRASSUS, LUCIUS LICINIUS: B.C. 140–91: the best orator of his age, distinguished for his wit and for his rectitude in the capacity of proconsul. In B.C. 95 he was elected consul, with Quintus Mucius Scævola (who had been his colleague in all his previous offices). During their consulship was enacted the *Lex Licinia Mucia de Civibus regundis*, banishing from Rome all who had not the full rights of citizens. This imbittered the feelings of foreigners toward Rome, and partly led to the Social War. As censor, C., B.C. 92, closed all the schools of the rhetors—asserting that they had exercised a bad influence on the minds of young men. C. died in consequence of excitement attending a debate in the senate.

CRASSUS, MARCUS LICINIUS, Roman triumvir: abt. B.C. 115—abt. 57. His father and brother suffered death from the party of Marius, B.C. 81, and he himself—though young—was subjected to a jealous and dangerous surveillance. In B.C. 85, to escape from this, he went to Spain. He afterward joined Sulla, B.C. 83, and distinguished himself in the battle against the Samnites at the gates of Rome. As prætor he crushed the Servile revolt, by the conquest of Spartacus at the battle of Lucania B.C. 71, and in the following year was made consul with Pompey, a colleague whom he hated. On the other hand, Cæsar valued the friendship of C., the most wealthy of Roman citizens. During his consulate, C. gave a feast to the people which was spread on 10,000 tables, and distributed a provision of corn for three months. Plutarch estimates the wealth of C. at more than 7,000 talents, and Pliny states that the lands of C. were worth 8,000 talents. About B.C. 60 Cæsar, Pompey, and C. entered into a private arrangement for their common benefit: this paction is known as the first *triumvirate*: see CÆSAR. In B.C. 57, as consul with Pompey, he gained the province of Syria, and professed to make preparations of war against the Parthians; but the acquisition of more wealth seems to have been his main

object, and this he effected by plundering the towns and temples in Syria. At length, however, he set out, but was misguided by a treacherous Arab, and utterly defeated at the river Bileeha by the Parthians. C. now retreated to the town of Carrhæ, intending to pass into Armenia; but was beguiled into a conference with the Parthian general, Surenas, and was slain at the appointed place of meeting. His quæstor, Cassius, with 500 cavalry, escaped into Syria; but the remaining Romans were scattered and made prisoners, or put to death.

CRATÆGUS, *kra-tē'gŭs*: genus of plants of the nat. ord. *Rosaceæ*, family *Pomaceæ*, very nearly allied to *Mespilus* (Medlar) and *Pyrus* (Pear, Apple, etc.), but distinguished by the acute calycine segments, and by the round or oval fruit, closed at the apex, and concealing the upper end of the bony cells. The species are numerous, natives of the temperate parts of the n. hemisphere, and in general have flowers in beautiful terminal corymbs. They all are large shrubs or small trees, more or less spiny, whence the name THORN has been very generally applied to them. The only native of Britain is the common HAWTHORN (q.v.), (*C. oxyacantha*). Most of the species resemble it considerably in habit, size, form of leaf, etc. A number of them are now frequent in plantations and shrubberies in Britain, of which perhaps the most common is the COCK'S-SPUR THORN (*C. crus-galli*), native of N. America from Canada to Carolina. Its leaves are not lobed; its fruit rather larger than that of the hawthorn. The AZAROLE (*C. Azarolus*), native of the south of Europe, and the ARONIA (*C. Aronia*), native of the Levant, are occasionally cultivated for their fruit, which is about the size of the Siberian crab, and is used either for dessert or for pies. *C. Orientalis* (or *odoratissima*) and *C. tanacetifolia* also have fruit of considerable size. The latter is much eaten in Armenia. *C. Mexicana* has a large fruit, like a small apple, not eatable, but very ornamental. The wood of most of the species much resembles that of the hawthorn. It is common to graft the rarer species on the hawthorn.—*C. pyracantha* differs much in appearance from most of the genus; being a pretty evergreen shrub, with lanceolate crenate leaves, and rich clusters of red berries, which remain on it all winter; native of rocky places in the south of Europe and the Caucasus. It is often employed in Britain as an ornamental covering for walls, and is known as the PYRACANTHA.

CRATÆVA, n. *kra-tē'va* [after *Cratævus*, a Gr. botanist who lived about B.C. 430]: genus of hypogenous exogens, order *Capparidaceæ* (q.v.), tribe *Capparеæ*.

CRATCH, n. *krăch* [F. *creiche;* OF. *creche;* It. *craticia*, a rack, a crib—from L. *cratēs*, a hurdle]: the open frame in which hay is put for cattle; a hurdle; a fold.

CRATE, n. *krāt* [L. *cratēs*, wicker or hurdle work: It. *crate*, a harrow: Dan. *krat*, copse: comp. Gael. *creatach*, a hurdle]: any open receptacle rudely formed of sticks or twigs; an open case formed of small bars or rods of wood in which glass, china, etc., may be packed for carriage; a hamper.

CRATER, n. *krā'tēr* [L. *cratēr;* Gr. *kratēr*, a cup]: the mouth of a volcano, so called from its cup or bowl-shaped vent or aperture; a constellation of the s. hemisphere, called the *cup.* CRATERIFORM, a. *krā-tēr'ĭ-fawrm* [L *forma*, a shape]. having the form of a crater—applied to hills whose summits present bowl-shaped depressions.

CRA'TER: central cup-shaped cavity in the summit of a volcano (q.v.), through which the lava, stones, scoria, etc., are for the most part ejected. These materials sometimes escape from immense rents in the sides of the volcano, as in the famous eruption of Hecla, 1783, when two enormous streams of lava poured from its side to the distance, the one of 40, the other of 50 miles. The volcanic materials, when they escape through a crater, are not always ejected through the old vent on the summit; some other portion of the mountain may yield more readily to the pressure from within, and thus one or more lateral craters be formed, which, however, increase in height from the accumulation of ejected materials, and eventually, if the eruption continues, overtop the former cone.

CRATES, OF THEBES: A disciple of Antisthenes, the cynic, who flourished about the end of the fourth c., B.C. See CYNICS.

CRATES, THE ACADEMIC (dates of birth and death uncertain): one of the early disciples of Plato, who at one time directed the philosophic school founded by Plato.

CRATINUS, *kra-tī'nŭs:* Greek comic poet; b. about B.C. 519. Next to his younger contemporaries, Eupolis and Aristophanes, he is the most valuable representative of the Old Attic comedy. He changed its outward form considerably, and fought to add to its vigor and power. Before his time, the number of actors had been indefinite; he limited them to three. He was the first to make comedy pungent and personal. The habits, manners, institutions—in fact, the whole public and private life of the Athenians—were considered by Cratinus a legitimate mark for censorious satire. The greatest men did not escape. Pericles, for instance, was frequently and fiercely abused. Cratinus' style was very metaphorical and ingenious. Of his 21 comedies, nine of which obtained the first prize in the public competitions, only some fragments remain, collected by Meineko in his *Fragmenta Comicorum Græcorum* (Berlin 1840).

A younger CRATINUS, contemporary of Plato, belonged to the school of the Middle Comedy.

CRATIPPUS, *kra-tĭp'pŭs:* Peripatetic philosopher, in the c. before Christ; b. Mitylene: contemporary of Cicero. He appears to have been held in the highest estimation by the great men of his age. Cicero calls him the prince of all the philosophers whom he had known. Pompey visited him after his defeat at Pharsalia, and received at his hands the consolations of philosophy; and Brutus went to Athens, to which city Cratippus had latterly betaken himself, to listen to his prelections, even while making preparations

to meet Octavius and Antony. Nothing that Cratippus wrote has survived.

CRATOXYLON, n. *krăt-ox′ĭ-lŏn* [Gr. *kratos*, strength; *xulon*, fire-wood, timber]: genus of hypogenous exogens, order, *Hypericaceæ*, tribe *Elodeæ*.

CRAUNCH, or CRANCH, v. *krânsh* [Dut. *schransen*, to eat greedily—a word imitative of the noise]: to crush with the teeth; to chew with noise. CRAUNCH′ING, imp. CRAUNCHED, pp. *krânsht′*.

CRAVAT, n. *kră-văt′* [F. *cravate*, a neckcloth: formerly written *crabat*—said to have been introduced in 1636, and named after the *Crabats* or *Cravats*, as the *Croatians* were then called]: a neckcloth; a large necktie.

CRAVE, v. *krāv* [AS. *crafian*, to ask: Icel. *krefa* and *krefja;* to demand: W. *crefu*, to desire]: to ask earnestly; to ask humbly; to long for; to beg, entreat, or implore. CRA′VING, imp.: N. a vehement or urgent desire to obtain. CRAVED, pp. *krāvd*.—SYN. of 'crave': to ask; seek; beseech; solicit; request; supplicate; adjure; require; demand.

CRAVEN, n. *krā-vĕn* [OE. *cravand* or *cravant*, a coward—anciently the exclamation of the party overcome in single combat, when he yielded: prov. Eng. *cradant;* Scot. *crawdon*, a coward]: a recreant; one cowardly base; a poltroon: ADJ. weak-hearted; spiritless; cowardly base: V. to make cowardly. CRA′VENLY, ad. *-lĭ*. *Note.*—*Cravand* or *cravant* is an OE. present part. equal to *craving*, from *crave*—that is, 'one begging for quarter or suing for mercy.'—see SKEAT.

CRAVEN, *krā′vn*, ALFRED WINGATE: 1810, Oct. 20—1879, Mar. 29; b. Washington: civil engineer. He graduated at Columbia College 1829, studied civil engineering, and followed it with distinction till his death. He was largely employed in railroad construction and management in various parts of the country; but his most important work was in New York in connection with its sewerage, its supply of Croton water, and the improvement of Fourth avenue. From the organization of the Croton Water Board 1849 till 1868 he was its engineer, and planned and supervised the construction of the great works of that period. He was the founder, director many years, and pres. 1869–71 of the American Soc. of Civil Engineers.

CRAVEN, THOMAS TINGEY, U.S.N.: 1808, Dec. 30—1887, Aug. 23; b. Portsmouth, N. H.: eldest son of Tunis Craven, U.S.N. He entered the navy as a midshipman 1822; served in the Pacific squadron 1823–28; was sailing master of the *Erie*, W. India squadron, and was present at the capture of the pirate *Federal* 1828; was commissioned lieut. 1830; commanded Capt. Wilkes's flag-ship in the antarctic exploring expedition 1838; appointed commandant of midshipmen in the naval acad. 1850; promoted commander 1852, capt. 1861, commodore 1862, and rear-admiral 1866; and was given command of the Pacific squadron 1868. He was at one time in command of the Potomac flotilla, and at

the capture of New Orleans was commander of the *Brooklyn*. During 1866–68 he was commandant of the Mare Island, Cal., navy yard.

CRAW, n. *kraw* [Dan. *kro*, the craw: Ger. *kragen*, the neck or throat: Dut. *kraeye*, the neck: Sw. *krafwa*, a craw]: the crop or first stomach of a bird.

CRAW-FISH, n. *kraw'fĭsh*, or CRAYFISH, *krā'fĭsh* [corruption of Eng. *creveys* or *crevish*—from O.H.G. *krebiz;* F. *écrevisse;* Dut. *krevisse*, a crawfish: Ger. *krebs*, a crab]: genus *Astacus* of Europe and the Pacific states: *Cambarus* of central and e. N. Amer. Crustaceans (q.v.) of order *Decapoda* (see CRAB), sub-order *Macroura* (i.e., long-tailed —characterized by the elongation of the abdomen, and its termination in a sort of fin composed of five pieces and expanded laterally); nearly allied to the lobster, from which, however, it differs in being smaller, in inhabiting fresh water, and in some points of anatomy. Of the three European species A. *fluviatilis* (*nobilis* of Huxley) and *A. torrentium* are edible. Six species of *A.* are credited to our Pacific slope; and species-makers would have 32 species of the genus *Cambarus*, east of the Rocky Mts. Some live in streams, some burrow in prairie intervales. One or two species bore the levees of the lower Mississippi and cause floods. The Milwaukee crawfish are most esteemed in New York, and, like the Montreal, turn red in boiling, unlike the early large ones from the Potomac.

CRAWFORD, *kraw'ford*, FRANCIS MARION: novelist: b. in Italy 1854, Aug. 2; son of Thomas Crawford (q.v.), the American sculptor. He was educated partly in America and partly in Europe, attending the universities of Cambridge, Heidelberg, and Rome, and for two years edited a daily paper in India. He has resided mostly abroad. *Zoroaster* and *Marzio's Crucifix* were written in French as well as English, and were awarded a prize of 1,000 francs by the French Academy. His principal works include: *Mr. Isaacs* (1882); *Dr. Claudius* and *To Leeward* (1883); *A Roman Singer* and *An Amateur Politician* (1884); *Zoroaster* (1885); *A Tale of a Lonely Parish* and *Saracinesca* (1886); the latter dealing with Roman society in 1865 and since; *Marzio's Crucifix* (2 vols. 1887), the hero a silver-worker and socialist; *Paul Patoff* and *With the Immortals* (1888); *Sant' Ilario* (1889); *A Cigarette Maker's Romance* (1890); *The Witch of Prague* (1891); *The Three Fates* (1892); *Don Orsino* (1892); *Casa Braccio* (1895). *Taquisara* (1896); *A Rose of Yesterday* (1897); *Corleone* (1897); *Ave, Roma Immortalis* (1898); *In the Palace of the King* (1898); *Via Crucis* (1899); *The Rulers of the South* (1900); *Marietta* (1901); *Cecelia* (1902); *Man Overboard* (1903.). As a novelist Crawford is characterized by excellence in the depicting of character and general carefulness in the handling and collection of his materials.

CRAWFORD, GEORGE WASHINGTON, American lawyer: b. Columbia County, Ga., 1798, Dec. 22.; d. 1872, July 22. He was graduated at Princeton 1820; was attorney-

general of Georgia 1827–31; a member of the State legislature 1837–42; and Whig representative in Congress 1843. He was elected governor of Georgia 1843, and re-elected 1845. He was secretary of war in President Taylor's cabinet 1849–50, resigning upon the death of the President.

CRAWFORD, John Martin, American physician: b. Herrick, Pa., 1845, Oct. 18. He was graduated at Lafayette College 1871, and at Pulte Medical College, Cincinnati, 1878, where he became professor of physiology and physical diagnosis 1881–9. From 1889 to 1894 he was United States consul-general to Russia, and while there made the first complete English translation of the Finnish epic-poem *The Kalevala* (1888). He also edited and translated a five-volume work on *The Industries of Russia.*

CRAWFORD, Mary Caroline, American author: b. Boston, Mass., 1874, May 5. She was educated at Radcliffe College, and besides contributing editorially and otherwise to various New York and Boston journals, was literary editor of the *Boston Budget* (1898–1902.) She has published *The Romance of Old New England Roof Trees* (1902); *The Romance of Old New England Churches* (1903); *The College Girl of America* (1904); *Faith Erskine. Journalist*, a novel.

CRAW'FORD, Nathaniel Macon, d.d.: 1811, Mar. 22—1871, Oct. 27; b. Oglethorpe co., Ga.: educator. He graduated at the Univ. of Ga., 1829; studied law, but never practiced; was prof. of mathematics in Oglethorpe Univ. 1837–41; was licensed to preach 1843 and ordained 1844; served pastorates in Bapt. churches in Washington, Ga., and Charleston, S. C., 1845–6; was prof. of Biblical literature in Mercer Univ., Ga., 1847–54, and pres. 1854–57; chosen prof. of theol. in the Western Bapt. Theol. Seminary, Georgetown, Ky., 1857; was again pres. of Mercer Univ. 1858–65; and pres. of the Georgetown Seminary 1865–70. Dr. Crawford was also elected pres. of the Bible Revision Committee (Bapt.) 1857, published numerous doctrinal works, and a volume, *Christian Paradoxes*, 1858.

CRAW'FORD, Samuel Wylie: 1829, Nov. 8—1892, Nov. 3; b. Franklin co., Penn.: milit. officer. He graduated at the Univ. of Penn. 1846; studied medicine and entered the army as asst. surgeon 1861. He commanded one of the batteries at Fort Sumter during the bombardment; then resigning his commission as surgeon he became maj. 13th U. S. inf. 1861; was promoted brig. gen. of vols. 1862; commanded the Penn. reserves while stationed in the vicinity of Washington to protect the national capital; served with distinction in the battles of Winchester and Cedar Mountain; distinguished himself at Gettysburg; and took part in all the operations of the Army of the Potomac till the close of the war. He received brevets of col., brig.-gen., and maj. gen. for distinguished gallantry; was mustered out of the volunteer service 1866; appointed col. 16th U. S. inf. 1869; and was retired on account of disability from wounds as brig. gen. U. S. A. 1873.

CRAW'FORD, Thomas: 1814, Mar. 22—1857, Oct. 16; b. New York: sculptor. When a mere youth he worked at wood-carving, when 19 years old entered the studio of Frazer and Launitz, monumental sculptors, and when 21 that of Thorwaldsen in Rome, with whom he worked several years. He modelled busts to be put in marble, copied in marble several noted statues, including the Vatican Demosthenes, and produced his first original work, *Orpheus*, 1839. In 1844 he returned to the United States, found himself famous, modelled a bust of Josiah Quincy, sr., for Harvard Univ. library, and secured valuable commissions. On a second visit, 1849, he received a commission from the state of Va. to execute a colossal statue of Washington for the capitol at Richmond, and commissions from congress for marble and bronze statuary for the new national capitol. Under the latter commission he designed the marble pediment exhibiting life-size figures illustrative of American progress, the bronze doors, and the colossal bronze statue of liberty that surmounts the dome. He finished upward of 60 works (many colossal), religious, historical, and mythological in character, and left nearly as many sketches and designs.

CRAW'FORD, William: military officer: 1732—1782, June 11; b. Berkeley co., Va. He served as a surveyor, was associated with Washington, and was with Braddock in the French and Indian war, being promoted capt. He settled in w. Penn. 1767, and was made justice of the peace. He served through the revolutionary war, reaching the rank of col. In 1781 he resigned, and settled on a farm, but 1782 was appointed to command an expedition against the Wyandot and Delaware Indians. His party met the Indians on the Muskingum river, and, though greatly outnumbered, fought desperately for two days, when, being surrounded, they attempted to cut their way out. During this retreat C. was captured, and after being cruelly tortured, was burned at the stake.

CRAW'FORD, William Harris: 1772, Feb. 24—1834, Sep. 15; b. Amherst co., Va.: statesman. In 1783 he settled in Columbia co., Ga., 1788 began teaching school, 1798 was admitted to the bar, and entered on practice in Lexington. He assisted in compiling the first digest of state laws, was elected to the state senate 1802 and to the U. S. senate to fill a vacancy 1807 (fighting two duels during the canvass), was re-elected for a full term 1811, was chosen pres. of the senate pro tem. 1812, Mar., and, refusing the secretaryship of war, was appointed minister to France 1813. Two years later he was appointed sec. of war, and the next year sec. of the treasury, and held the latter office till 1825, Mar. He was urged as a candidate for the presidency several times while sec. of the treasury, received the nomination in congressional caucus—then the customary way—1824, Feb., and in the election had 41 electoral votes. No choice for president having been reached, the election was decided in the house of representatives; but meanwhile C. had been stricken with paralysis, which precluded

his effectual candidacy. He at first opposed, then supported, the war with Great Britain, carried out the views of Jefferson as again the federalist policy while sec. of the treasury, was unanimously exonerated by a special committee of the senate from charges of official misconduct while sec., was compelled by ill health to retire from political life was elected a circuit judge in Ga. 1828, and held the office by re-elections till within a short time of his death.

CRAW'FORDSVILLE: city, cap. of Montgomery co., Ind., on Sugar Creek and the Louisville, New Albany and Chicago, and the Logansport, Crawfordsville and Southwestern railroads; 28 m. s. of Lafayette, 43 m. w.n.w. of Indianapolis. It is the seat of Wabash (Presb.) College, founded 1834, which has 10 professors and a library of over 12,000 vols. The city has several fine churches, one national bank, weekly newspapers, and several carriage and other manufactories. Pop. (1910) 9,371.

CRAWL, v. *krawl* [Sw. *kralla*, to creep: Icel. *krafla*, to paw: F. *grouiller*, to stir, to swarm: Dut. *krielen*, to stir about, to swarm: Dan. *gryle*, to swarm, to crawl]: to have an indistinct confused appearance of moving things; to move feebly and irregularly; to creep; to move slowly, as a worm; to move on the hands and knees, as a child: N. an inclosure on the coast for fish [Dut. *kraal*, which see]: the place set apart for fish in a fishing-boat. CRAWL'ING, imp. CRAWLED, pp. *krawld*. CRAWL'ER, n. one who. CRAWL'INGLY, ad. *-lĭ*.

CRAYER, *krī'yėr* F. *krā-yā*, CASPAR DE : Flemish historical and portrait painter: 1582-1669; b. Antwerp. He lived first at Brussels; afterward at Ghent, where he died. For the churches at Ghent he executed 21 altar-pieces. His works are found all through Flanders and Brabant. The galleries of Vienna and Munich also possess a few. Their main characteristics are vigor and boldness of design, and care and truthfulness in execution. Rubens was a great admirer of Crayer.

CRAYFISH, n. *krā'fĭsh:* for CRAW-FISH, which see.

CRAYON, n. *krā'ŏn* [F. *crayon*, a piece of drawing-chalk—from *craie*, chalk: OF. *croie*—from L. *crēta*, chalk: Gael. *creadh*, clay]: a kind of pencil. CRAY'ONS, n. plu. pieces of chalk of different colors used for drawing with; the drawing itself done with crayons: V. to sketch with a crayon. CRAY'ONING, imp. CRAY'ONED, pp. *-ŏnd*. PORTE-CRAYON, *pŏrt-krā'ŏn* [F. *porter*, to carry]: a holder for a crayon, consisting of a tube of metal split at one or both ends, for the insertion of a crayon. Though used in French, and occasionally in English, to designate a pencil generally, including those called 'lead pencils,' the word crayon is more frequently applied, in England, to one of those small cylinders of charcoal, or of pipe-clay, or of chalk colored with various pigments, which are used for drawing. Cohesiveness is given to the paste of which the cylinders are formed by means of gum, wax, soap, etc. Crayon drawings are often remarkable for the delicacy and softness with

which objects are represented, but they are deficient in power. See PENCIL: CHALK.

CRAZE, v. *krāz* [F. *écraser*, to crush, to bruise: Dan. *krase;* Sw. *krasa*, to crackle]: to disorder or weaken; to impair the natural force or energy, as of the intellect; to bruise or crush: N. a weakness of mind in any particular thing. CRA'ZING, imp. CRAZED, pp. *krāzd:* ADJ. applied to the glaze on pottery that has a cracked appearance, arising from improper firing. CRAZY, a. *krā'zĭ*, broken; feeble; weak; shattered in mind; inordinately eager. CRA'ZILY, ad. *-lĭ*. CRA'ZINESS, n. the state of being broken or weakened in intellect, or in a thing. CRAZING-MILL, a mill for crushing or grinding tin.

CREACH, n. *krā'ăch*, [Gael.]: a raid for plunder. CREACHT, *krā'ăcht;* a cattle-lifter.

CREAK, v. *krēk* [a word imitative of a more acute sound than that represented by *crack:* F. *criquer*, to creak: It. *criccare*, to rattle: Dut. *krick*, a crash, a creak]: to make a sharp, harsh, grating noise. CREAK'ING, imp.: ADJ. making a harsh, grating noise: N. a harsh, grating noise. CREAKED, pp. *krēkt*.

CREAM, n. *krēm* [F. *crême;* It. *crema*, cream; *cremore*, the simmering of milk beginning to boil: Icel. *krauma*, cream—from *kraumr*, the lowest point of boiling: AS. and Scot. *ream*]: thick oily scum, being the butyraceous and richer portion of milk, which as lighter rises and settles on the surface when the milk has stood for a time: see MILK. The term cream is applied in a variety of ways, indicative of something superior in quality; e.g. (colloq.) 'the cream of the joke'; thus the French, referring to persons in the height of fashion speak of *La crême de la crême*—The cream of cream. CREAM, v. to skim; to take off the best part of anything. CREAM'ING, imp. CREAMED, pp. *krēmd*. CREAM'Y, a. *-ĭ*, full of cream. CREAM-FACED, pale; having a coward look. CREAM'INESS, n. *-ĭ-nĕs*. COLD CREAM (see that title). CREAMERY, n.: a place where milk is kept till the cream rises; a place where butter is manufactured, or where dairy products are sold.

CREAM OF TARTAR: acid potassium tartrate, $KOCOCH(OH)CH(OH)CO_2H$, is deposited in an impure condition during the fermentation of grape juice. This crude material is called *argol*, it is purified by treatment with clay or some similar colloidal substance which removes the colored impurities. Cream of tartar forms hard crystals which dissolve in 200 parts of cold water. It is used in medicine, in soldering silver, in silvering turning, dyeing and, occasionally, in the preparation of pure potassium carbonate, which is formed when cream of tartar is strongly heated. The chief use of cream of tartar is, however, in the manufacture of baking powder. Being an *acid salt* (see CHEMISTRY, SALTS) it can decompose sodium bicarbonate and liberate carbon dioxide. Such baking powders have a residue of sodium potassium tartrate (Rochelle salt) in the article of food, and the *habitual*

free use of it is, therefore, probably not very desirable. See TARTARIC ACID.

CREASE, n. *krēs* [Bret. *kriz*, a wrinkle, a tuck in a garment: W. *crych*, a wrinkle, a ripple: F. *grisser*, and *crisser*, to crackle]: a line, mark, or wrinkle made in cloth in folding it: V. to mark by a fold like a furrow. CREAS'-ING, imp. CREASED, pp. *krēst*.

CREASOTE, n. *krē'ă-sōt* [Gr. *kreas*, flesh; *sozo*, I preserve]: a mixture of substances closely allied with phenol (carbolic acid) obtained from the products of the destructive distillation of wood, especially beech. It is procured incidentally as one of the constituents of wood-tar, from which it is separated by a tedious process. The principal supplies are obtained from Stockholm, Archangel, and from America. In the pure condition creasote is a colorless oily liquid, with high refractive powers; but the commercial specimens are generally colored yellow or light brown; boils at about 200° c.; does not readily inflame; but when set fire to, burns with a smoky flame. It has an odor of smoke, a hot burning taste, and is very poisonous to plants and animals. It has a great power of coagulating albumen, and hence may be employed with advantage in toothaches; a drop placed on the exposed nerve coagulates the albuminous tissues, and destroys its vitality and sense of pain. The most important property possessed by creasote however, is its antiseptic or preserving power over vegetable and animal organs and structures. Thus, ordinary meat treated with only one-hundreth of its weight of creasote and exposed to the air, does not putrefy, but becomes hard and dry, and assumes the taste and odor of smoked meat. Again, timber treated with creasote, does not suffer from dry rot or other disease; and thus creasote. in a crude form, is employed in the preservation of wood (q. v.). The crude pyroligneous acid of commerce, often used in the curing of hams, etc., owes part, at least, of its preserving powers to the presence of a trace of creasote, which leaves its characteristic odor so well known as obtained from the burning of wood for the smoking of hams, etc. When used medicinally creasote acts externally by destroying the cuticle; internally, in small doses of a drop or two, it is serviceable in arresting obstinate vomiting; while in large doses it produces nausea and severe vomiting, and, in many cases, fatal results. Creasote is often adulterated with phenol (carbolic acid)

CREASY, *krē'sĭ*, Sir EDWARD SHEPHERD: 1812–1878, Jan. 27; b. Bexley, Kent, England: lawyer and historian. He was educated at Eton and King's College; was called to the bar 1837, appointed prof. of modern and ancient history in the Univ. of London 1840, and chief justice of Ceylon 1860. He was author of *The Fifteen Decisive Battles of the World* (1852); *The Rise and Progress of the British Constitution; A History of the Ottoman Turks;* a *History of England*) 1869–70); and *The Imperial and Colonial Constitutions of the Britannic Empire* (1872).

CREATE, v. *krē-āt′* [L. *crĕātus*, created—allied to Sks. *kri*, to make: It. *creare:* F. *créer:* comp. Gael. *cruth*, a form or shape]: to give birth to; to form out of nothing; to bring into existence by inherent power; to produce from existing materials a body invested with new powers and qualities; to generate; to form anew; to invest with a new character or dignity; to produce or cause. CREA′TING, imp. CREA′TED, pp. CREA′TOR, n. *-tėr*, the Deity; one who creates. CREA′TION, n. *-ā′shūn*, the act of creating the world; the world itself; the universe. CREA′TIVE, a. *-tĭv*, that has a power or tendency to create. CREA′TIVELY, ad. *-lĭ*. CREA′TIVENESS, n. CREATURE, n. *krē′tūr*, often *-chûr*, every living thing except God, the Creator—applied also to inanimate substances; an animal; a human being in contempt or pity; anything produced or imagined; a dependent or tool. CREA′TURELY, ad. *-lĭ*. CREA′TURESHIP, n. state of a creature. CREATURE-COMFORTS, those things which minister to the comforts of the body.—SYN. of 'create': to make; form; cause occasion; produce; constitute; appoint.

CREATINE, *krē′ă tĭn*; methylquanidoacetic acid, $H_2NC(:NH)N(CH_3)CH_2CO_2H$, a crystalline compound extracted from the muscular flesh of mammalia, birds, amphibia and fishes. It was discovered by Chevreul in 1835, and may be made artificially from a derivative of acetic acid. It is a base and forms several crystalline salts with acids.

CREATININE, n. *krē-ăt′ĭ-nĭn*, the *anhydride* of creatine, $HN{:}C<^{N(CH_3).CH_2}_{NH--'CO}$, from which it is formed by the action of mineral acids or of dehydrating agents. It occurs to the extent of 0.5% in human urine and also in that of horses, calves and dogs, and in the flesh of some fish. Creatine crystallizes in prisms and forms salts with 1 equivalent of acids; in general they resemble the corresponding compounds of creatine.

CREATIONISM, *krē-ā′shūn-ĭzm:* in theology, a term in use from ancient times, denoting the theory that the spiritual essence in every individual man is produced not like his body by generation, but immediately as an inbreathing into him from the creative Spirit of God. It is thus opposed to TRADUCIANISM (q.v.). In recent years it has been applied as indicating a theory of the origin of the human race by God's direct creative act, as opposed to evolutionism, which affirms that humanity is developed from or through some preceding animal forms: see DARWINIAN THEORY: EVOLUTION.

CRÉBILLON, *krā-bē-yōng′*, CLAUDE PROSPER JOLYOT DE, the younger: 1707, Feb. 14—1777, Apr. 12; b. Paris, son of Prosper Jolyot de Crébillon. In an age of licentious manners he acquired popularity by a series of romances, remarkable chiefly for violation of decency; the principal of which are *Le Sopha, Le Hasard du Coin du Feu, Les Égarements du Cœur et de l' Esprit.*

CRÉBILLON, Prosper Jolyot de: 1674—1762, June 17; b. Dijon: French dramatist. He was sent to Paris to study law, but turned to poetical pursuits. His first piece, *La Mort des Enfants de Brutus*, was rejected by the actors; but the succeeding dramas of *Idoménée* (1705) and *Atrée* (1707) were successful. *Rhadamiste* (1711), a tragedy of the dismal kind, was reckoned Crébillon's masterpiece, and established his reputation. After producing some other pieces, Crébillon fell into pecuniary difficulties and neglect, and for more than 20 years produced nothing. His talents were then called again into requisition by Madame de Pompadour, who wished to humble Voltaire. He received from the king a pension of 1,000 francs, and completed the tragedy of *Catilina*, for which the king himself supplied all the properties. When 81 years old, Crébillon wrote his tragedy *The Triumvirate*, and, still later, commenced, but did not finish, another called *Cromwell*. Louis XV. erected a monument to his memory. Crébillon, in general, displays little skill in the conduct of his plots; the monologues of the speakers are too numerous and too long; but in the opinion of his countrymen he is surpassed, in 'the grandeur of his sentiments,' only by the author of the *Cid* and *Horace*. The best edition of Crébillon's works is that published by Didot (2 vols. Paris 1818).

CRÈCHE, n. *krāsh* [F. *crèche*, a crib]: a house for the temporary accommodation of young children during the time their mothers are at work; a cheap day boarding-house for very young children and infants, conducted from benevolent motives.

CRÉCY or Cressy, *krĕs'sĭ*, F. *krā-sē':* small town of France, dept. of Somme, on the Maye, about 12 m. n. of Abbeville. Crécy is notable chiefly for the brilliant victory 1346, Aug. 26, of Edward III., with 40,000 English soldiers, over a French army amounting, according to Froissart, to 100,000 men, under the Count of Alençon. In this great battle, one of the most honorable to English powers recorded in history, the flower of French chivalry was slain, as well as the kings of Bohemia and Majorca, who were fighting on the side of France. Altogether, about 30,000 of the French army fell. In this battle the Black Prince, who greatly distinguished himself, gained his spurs; and the crest of the slain Bohemian king, composed of three ostrich feathers, with the motto, *Ich Dien*, 'I serve,' was adopted by him in memory of the victory, and continues to be borne by the Prince of Wales. Crécy is an ancient place. Pop. abt. 1,500.

CREDENCE, n. *krē'dĕns* [L. *credens* or *creden'tem*, trusting or confiding in—allied to Sks. *crat*, faith: It. *credenza*, belief: comp. Gael *creideas*, faith, credence]: belief; credit; confidence. Credendum, n. *krē-dĕn'dŭm*. Creden'da, n. plu. *-dă* [L.]: a thing to be believed; an article of faith. Credent, a. *krē'dĕnt*, in *OE.*, believing; not to be questioned. Creden'tial, a. *-shăl*, giving a title to credit. Creden'tials, n. plu. *-shălz*, that which gives a title to

credit; the letters or written documents on which a claim to hospitality or official status is founded at a foreign court.

CREDENCE or CREDENCE-TABLE, n. *krē′dĕns-tā′bl* [F. *crédence*—from It. *crcdenză*—from mid. L. *crcdcntĭa*, the buffet or sideboard at which the king's taster, *credentĭārĭŭs*, proved all dishes by tasting them before they were set on table (see CREDENCE)]: small table at the side of the altar or communion-table, on which the bread and wine are laid before being consecrated. It is a sort of side-altar in the Greek Church called *Trapeza Prothcsis*. Abp. Laud was a great stickler for the credence and pleaded the authority of Bp. Andrews and other bishops for its use. There are credences in various Anglican churches; among others, in the Collegiate and St. John's Churches, Manchester; and in the parish church at Ludlow, where they have been in use from time immemorial. Sometimes the place of the credence was supplied by a mere shelf across the fenestella (q.v.). The introduction of the credence is one of the restitutions of old usages which marked the movement in the English Church known as Puseyism: see PUSEY, EDWARD BOUVERIE.

CREDIBLE, a. *krĕd′ĭ-bl* [L. *credibĭlĭs*, credible—from *credĕrĕ*, to trust, to confide in]: worthy of credit or belief. CRED′IBLY, ad. *-blĭ*. CRED′IBIL′ITY, n. *-bĭl′ĭ-tĭ* [F. *crédibilité*—from L. *credĭbĭlĭtātem*]: the state of a thing which renders it possible to be believed; strong claim to credit. CRED′IBLENESS, n. *-bl-nĕs*.

CREDIT, n. *krĕd′ĭt* [F. *crédit*—from L. *credĭtum*, a loan: L. *credit*, he confides or trusts in: It. *credito*, credit]: trust or confidence in; reliance on the truth of words spoken; confidence in the sincerity of intentions or actions; good opinion derived from character or social position; power; influence; sale of goods on trust; time allowed for payment of goods not sold for ready money; in *book-keeping*, one side of an account is called the credit (Cr.) side, the other the debtor (Dr.) side—*by* is the sign of entry of the former, and *to* of the latter: V. to confide in; to believe; to trust; to sell goods on trust; to do honor to; to put a payment to an account to lessen its amount. CRED′ITING, imp. CRED′ITED, pp. CRED′ITABLE, a. *-ĭ-tă-bl*, worthy of praise or commendation; honorable. CRED′ITABLY, ad. *-tă-blĭ*. CRED′ITABLENESS, n. *-tă-bl-nĕs*, the quality of being creditable; reputation. CRED′ITOR, n. *-ĭ-tẽr*, one who has a just claim on another for money; in *OE.*, one who credits; a believer: see DEBTOR: BANKRUPT.—CASH CREDIT: see CASH ACCOUNT.—SYN. of 'credit, n.': belief; trust; faith; character; reputation; esteem; honor; estimation; authority; confidence; interest.

CREDIT, in political economy, the postponement of the payment of a debt agreed upon by the parties. It implies confidence of the creditor in the debtor; and the credit system implies general confidence in people's ability to meet their obligations. The modern credit system

does not rest on good faith alone, but its extensive use in commercial transactions is made possible by the use of bonds, drafts, checks, promissory notes, etc. By means of a credit system a comparatively small stock of money can be made to do duty for carrying on a number of different transactions, but it is indispensable for every good system of credit that money be instantly available when required. Public credit is the confidence which men entertain in the ability and disposition of a nation to fulfil its engagements with its creditors. The term is also applied to the general credit of individuals in a nation. The credit of the government does not always flourish or decline at the same time as private credit, yet there is some correspondence between the two, as general individual confidence can rarely if ever persist in the midst of distrust of the government, and a firm confidence in the government tends to promote a corresponding confidence among citizens.

CREDIT, Letter of: banker's written authority and request to another banker or person, to pay the sum therein specified to the bearer of the letter, or to some other third party named in it, and authorizes him to re-imburse himself for such payment, either by debiting it in account between the parties, or by drawing on the first party for the amount. This arrangement may take place between merchants or others, but in general it occurs between *bankers* residing in different places.—A small charge is made by the bank issuing the letter, termed the exchange or commission. Sometimes the letter is addressed to *all* or *several* of the correspondents of the bank issuing it, in which case it is termed a *Circular Credit;* and any of them may pay the sum mentioned, or sums to account as desired, taking the holder's receipt, or his draft on the granter, in exchange; and the sums so paid are *indorsed* on the letter, to show how far the credit has been used. If the party holding a circular letter can be properly introduced, even at a place where the granter has no correspondent, little difficulty will be experienced in obtaining money upon it; and the practice is to re-imburse any one who has given the money, if within the amount of the credit. The system is a great convenience to persons traveling, especially in foreign countries.

Some bankers, having an extensive correspondence abroad, issue what are called *Circular Notes,* usually of the value of $50 or $100 each, which any of the granter's correspondents, or indeed any one else, may cash to the holder, on his 'indorsation;' but a third party must take his risk of its being questioned. For this kind of credit, the receiver at once re-imburses the granter; whereas for the ordinary letter of credit, he is only re-imbursed when the drafts under it are advised to him, the holder continuing during the interval to raise interest on his money deposited for covering it. See Circular Notes.

CRÉDIT FONCIER, *krā-dē fŏng'syā:* peculiar method of borrowing money in France on the security of landed

property; established by an edict of 1852, Feb. 28. The repayment of the loan is by an annuity terminable at a certain date: the date and the amount of annuity being so calculated, that when the last payment is made, the loan and the interest on it will be extinguished. Another method of describing it is as a loan repayable by instalments. The transaction is precisely regulated by the edict, which prohibits an advance on more than half of the value of the property pledged or hypothecated. Three several companies were established by the French government, with the privilege of making such advances.

CRÉDIT MOBILIER: see MOBILIER.

CRÉDIT MOBILIER OF AMERICA, the source of the most tremendous legislative scandal in American history. The national government in 1864 had chartered a 'Union Pacific Railroad,' with $100,000,000 capital, to complete a transcontinental line west from the Missouri River; and offered to assist it by a loan of $16,000 to $48,000 a mile according to location, over $60,000,000 in all, and a land grant of 20,000,000 acres, worth $50,000,000 to $100,000,000. Even this offer attracted no subscribers, and a House committee added an authorization to the railroad to issue its own bonds dollar for dollar with the government's, the former to be first mortgage and the latter second; the bonds might be issued 100 miles in advance of construction. In other words, the government assumed all the risk. Oakes Ames, the soul of the enterprise, and a few associates, knew that this cost would not be much more than half the government's loan and gift together. To gain possession of the balance, it was decided to form the stockholders of the Union Pacific into a duplicate corporation under another name, as a construction company, to which the railroad company should turn over its bonds and stocks as payment for work and supplies. Mr. Ames and his associates accordingly bought up a moribund Philadelphia concern called the 'Pennsylvania Fiscal Agency,' chartered in 1859 and organized as a loan and contract company in 1863, and rebaptized it the 'Crédit Mobilier of America.' The Union Pacific stockholders took the same amount of stock in it as in the road. In 1866 the government extended its offer to such mileage as the Central Pacific should build east from its California lines, and the two companies began a race to secure the benefits. The net result was the nation paid $94,650,287.-28, and the Crédit Mobilier $50,720,958.94, leaving a profit of $43,929,328.34, counting at par the stock and bonds with which the Crédit Mobilier paid itself; on the statement of the trustees, they realized only $23,366,319.81 in cash. But this was certainly much understated; and even so, it was all gained in two years, to December 1868. But the rise of Crédit Mobilier stock in a few months from five cents on the dollar to three or four hundred and then out of the market, the payment of over 500 per cent a year dividends, the knowledge that there was only one place they could come from, and the inference that the govern-

ment trustees must be incompetent or worse, roused suspicious excitement. In 1872 it was publicly charged that the vice-pres., the vice-pres. elect, the sec. of the treasury, the speaker of the house, and several U. S. senators and representatives had accepted presents of stock tendered to influence them in favor of the railroad company. In 1872, Dec., the speaker of the house (J. G. Blaine), descended to the floor and demanded a committee of investigation containing a majority of his political opponents; which was appointed, with Luke P. Poland of Vermont as chairman. It made a report 1873, Feb. 18, which proved that the speaker had been offered the stock but had refused to touch it, as had Conkling, Bayard, Boutwell, and others. Some had taken it but returned it when law suits were threatened, without retaining the dividends; some kept it and justified it openly as a business investment; some kept it and the dividends till investigation was imminent, and possibly kept the dividends altogether; a few kept both and attempted to deny or explain away the ownership. The report recommended the expulsion of Oakes Ames and James Brooks. The vote on the report was deferred for a week, and the House merely censured both, who by a strange coincidence died shortly after, only a week apart. In the Senate, an investigating committee recommended the expulsion of Senator Pomeroy of Kansas, but no action was taken upon it. Consult: Crawford, *The Crédit Mobilier of America* (1880); Hazard, same title (1881), paper before the Rhode Island Historical Society.

CREDITON, *krē′dĭ-ton*, or KIRK′TON: borough in the middle of Devonshire, England, on the Creedy, a tributary of the Exe, 8 m. n. w. of Exeter. It lies in a narrow vale between two steep hills. At Crediton was born the Anglo-Saxon Winfred, or St. Boniface, the first to preach Christianity in Central Germany, founder of the monastery of Fulda, and archbishop of Mainz. Crediton was the seat of a bishopric 909–1050, when the sees of Devon and Cornwall were united and placed at Exeter. The chief manufactures were formerly woolens and serges, but now shoes. Crediton was much injured by fires 1743 and '69. Pop. about 6,000.

CRE′DO, *krē′dō* [L. *I believe*]: part of the service of the mass, beginning with the words, *Credo in unum Deum.*

CREDULOUS, a. *krĕd′ū-lŭs*]F. *crédule*—from L. *credŭlus*, easy of belief—from *credo*, I believe: It. *credulo*]: too easy of belief; unsuspecting; easily deceived. CRED′ULOUSLY, ad. *-lĭ*. CRED′ULOUSNESS, n. CREDULITY, n. *krĕ-dū′lĭ-tĭ*, excessive easiness of belief; unsuspecting trust.

CREED, n. *krēd* [L. *credo*, I believe, being the first word of the L. version]: a brief summary of the essential articles of religious belief; any system of principles professed or believed.

CREEDMOOR, *krēd′môr:* field for rifle practice, largest and most complete rifle-range in the United States; a station on the Long Island railroad, 11 m. e. of New York.

CREEDS AND CONFESSIONS.

CREEDS AND CONFESSIONS: authorized expression of Christian doctrine set forth by the church at large, or by the several sections into which it is divided. Such statements of doctrine sprang up naturally in the church's progress. As the simple truths taught by Christ in practical and mostly concrete form became the subjects of thought, of argument, of controversy, they could not fail to receive a more defined intellectual expression, and to be drawn out into more precise dogmatic statements—products of a Christian rationalism. Hence, the great creeds, as they rise in succession, and mark the climax of successive controversial epochs in the church, are nothing else than the varying expressions of the *Christian consciousness and reason*, in their efforts more fully to realize, comprehend, and express the originally simple elements of truth recorded in Scripture. The study of the creeds would be nothing else than the study of the science of theology in its highest historical development—in its reflex settlements after the great agitations of Christian thought had run their course.

Corresponding to this view, the creeds of Christendom grow in complexity, in elaborate analysis and inventiveness of doctrinal statement, as they succeed one another. The first are comparatively brief and simple in sense and form; the last are prolix and largely didactic. From the Apostles' Creed to the decrees of the council of Trent, or the chapters of the Westminster Confession of Faith, there is a wide change, during which the christian consciousness has grown from a childlike faith to a critical opinionativeness.

What has been called the *Apostles' Creed* is the earliest form of Christian creed extant unless precedence be given to the baptismal formula at the close of Matthew's Gospel, out of which many suppose the Apostles' Creed to have grown. We meet with no definite form of creed earlier than the latter part of the 2d c. In fact, creeds, in the history of the Christian Church, are of gradual growth.

The Apostles' Creed may have been rendered to candidates for baptism as a *traditio symboli*, based upon Matt. XVI. 16; and XXVIII. 19 or expansion of them, but the existence of the A.C. as we have it, cannot be established as being rendered by authority. The first creed, in point of time, other than that of the New Testament, was authoritatively proclaimed at the Council of Nicæa, A.D. 325. Indeed, no dogmatic summary of Christian doctrine is to be found in Christian literature till nearly a century after the death of John, the author of the Apocolypse. The outlines of a creed may be traced in the treatise of Novatian, but this approaches the 3d c.

There were in the early church differing forms of this primitive creed; that which is received and repeated in the service of the Church of England, has come through the Latin Church; and in several of its clauses, as, for instance, 'He descended into hell,' and again, 'The com-

munion of saints,' is supposed to have been interpolated according to later notions. A great variety of opinions has been held as to the origin of this creed. The earliest account of its origin we have from Rufinus, historical compiler and traditionalist of the 4th c. His statement is, that the apostles, when about to separate to preach the truth to different nations, agreed upon a 'form of sound words' which should express the sum of their common teaching. 'When met together, and filled with the Holy Ghost, they composed this compend of what they were to preach, each one contributing his share to the one composition, which they resolved to give as a rule of faith to those who should believe.' No great weight belongs to this great testimony; Rufinus is no historical authority. It is not improbable in itself, however, that even in the age of the apostles some simple formula of belief existed. The exact form of the present creed cannot pretend to be nearer to the apostles than four hundred years, but a form not much different from what it was in use long before. Irenæus, scholar of Polycarp, who was the disciple of the apostle John, when he repeats a creed not much unlike the present, declares that 'the church dispersed throughout the whole world had received this faith from the apostles and their disciples;' and Tertullian affirms that a similar creed had been 'prevalent as a rule of faith in the church from the beginning of the Gospel.' The same thing is proved by the creeds administered to the candidates for baptism in the 2d and 3d c. They correspond, with slight variations, to the Apostles' Creed. The true view of this formula of church belief, therefore, seems to be that which regards it as the Roman or Latin form in extension of the creed which prevailed in all the early churches. It is not strictly apostolic—certainly not in the order of words derived through the Latin Church, in which it is now received and repeated; but it may be deemed substantially apostolic—fairly representative of the different elements of Christian faith as handed down from the apostles, and therefore not without a claim in its substance on the credence of the universal Christian church. Since the Reformation in England, it has been the usage to exhibit the Apostles' Creed and Ten Commandments in legible characters on boards near the communion-table in churches, that they might be seen and repeated by the common people who were unprovided with books.

The *Nicene*, or rather, the Niceno-Constantinopolitan Creed, is the next great expression of doctrinal truth in the history of the church: see NICENE CREED. It sprang out of the conflict, which had begun even in the 2d c., as to the dignity and character of Christ. From the beginning, Ebionitism had looked upon Christ as merely a Jewish teacher of distinction; Theodotus and Artemon openly taught such a doctrine in Rome toward the close of the 2d c. Others, at a contrary extreme, taught a doctrine

which identified Christ with God absolutely in such a manner as to destroy all distinction of the three personalizations in the Godhead. Monarchianism, which held rigorously and formally to the unity of God, was the ruling principle of both doctrines, opposite as were the expressions that it assumed in the two cases.

The controversy thus begun in the 2d perpetuated itself in the 3d c., under various modifications. Paul of Samosata carried out the Unitarian tendency, which reduced Christ to the level of a mere man; Sabellius carried out the same tendency in the opposite direction, which made Christ not merely divine, of the same substance with the Father, but looked upon him as merely a manifestation of the Father, without any distinct personalization. Sabellianism recognized a Trinity of manifestations but not a Trinity of essences, nor even of distinct actual personalizations. God was one and all comprehending, and the Son and the Spirit were merely names or expressions for the different modes in which he reveals himself. Sabellius lived about the middle of the 3d c., and Paul of Samosata somewhat later. Arius, a presbyter of Alexandria, grew up in the midst of these divisive influences, and soon distinguished himself in the Alexandrian church for his advocacy of the doctrine that Christ, though in a true sense divine, or the Son of God, was yet not the very God. He denied that he was 'of the substance of God,' or 'without beginning;' he was only the highest of created beings, in a sense divine, but not the same in substance with the Father, nor equal with him in power and glory. Athanasius came forward as the opponent of Arius and the contest between them raged keen and wide throughout the church.

The Council of Nicæa was summoned 325 by Constantine, with the view of settling this controversy; and the Nicene Creed was the result: see NICE or NICÆA: NICE, COUNCILS OF. There were these three parties in the council—the Athanasians, or extreme orthodox party; the Eusebians, or middle party; and the Arians, or heretical party. The Arians were few in number, and had little influence; but the Eusebians were a strong party, and for some time resisted certain expressions of the orthodox or Athanasians, which seemed to them extreme and unwarranted; but at length the Homöousians, as they were called, carried the day; and Christ was declared not merely to be of like substance (*homoiousios*), but of the same substance (*homöousios*) with the Father. At the later Council of Constantinople (see CONSTANTINOPLE, COUNCILS OF), the additional tenet of the divinity of the Spirit was added, and the Nicene Creed completed in the form in which it is familiar in the communion service in the Book of Common Prayer. It confesses the holy and undivided Trinity, and distinctly owns the divinity of each person. It commemorates the creation of the world by 'God the Father Almighty;' it acknowledges Jesus Christ

to be the 'Lord' 'begotten' from all eternity, 'of one substance with the Father,' and with him Creator of all things; it acknowledges that 'for our salvation he came down from heaven, was made man, and suffered and died for us.' It commemorates his resurrection, ascension, and sitting at God's right hand; expresses the expectation of his second coming; and declares that 'his kingdom shall have no end.' It acknowledges 'one baptism for the remission of sins,' and looks 'for the resurrection of the dead' and 'the life of the world to come.'

The next remarkable monument of doctrinal truth in the church is called the *Athanasian Creed*, a product of the 5th c., much later than Athanasius himself, but representing, with great formal minuteness and fidelity, his doctrine of the Trinity, as apprehended and elaborated by the Western Church: see ATHANASIAN CREED.

The Apostles,' the Nicene, the Athanasian, are often called the great catholic or universal creeds of the church; though this statement must be taken in a general sense. After the time of the last-mentioned formula, there is no general symbol of faith that claims attention, till the period of the Reformation. Theology continued to be cultivated during the middle ages, especially during the 12th and 13th c., with great assiduity. Scholasticism is nothing else than the vast expression of the intellectual labor bestowed upon this subject during these ages, when scarcely any other subject can be said to have engaged men's minds. It was characterstic of scholasticism, however, to work mainly upon the doctrinal *data* already adopted and authorized by the Church, developing these data in endless sentences and commentaries. There was, withal, no real freedom of inquiry, nor life of speculation. But as soon as the eye of free criticism and argument was turned upon Scripture by the Reformation, new Creeds and Confessions began to spring up. On one hand, Protestantism had to defend its position and its scriptural authority by appeal to its system of belief; on the other hand, the Rom. Cath. Church, after many delays, gave forth at the Council of Trent (1545–63), a more extended and detailed statement of its doctrine than was to be found in any previous creeds. The *Decrees of Trent* are the fixed authoritative symbol or confession of faith of the Rom. Cath. Church: see TRENT, COUNCIL OF: VATICAN, COUNCIL OF THE.

Of the Protestant churches, the most notable confessions of faith are the Lutheran; the continental Calvanistic or Reformed; the Anglican, or Thirty-nine Articles of the Church of England; and the Puritan, or Westminister Confession of Faith.

The Lutherans call their standard books of faith and discipline *Libri Symbolici Ecclesiæ Evangelicæ;* and reckon among them, besides the three catholic creeds, the Augsburg Confession (q.v.), the Apology for that confession by Melanchthon, the articles of Smalkald drawn up by Luther,

Luther's Catechisms; and in some churches, the Formula of Concord, or the Book of Torgau.

Of the continental Calvinistic or Reformed Churches, there are numerous confessions, the principal of which are —1. The Helvetic Confessions—that of Basel, 1530, and Bullingers *Expositio Simplex*, 1566; 2. The Tetrapolitan Confession, 1531; 3. The Gallic Confession, 1559; 4. The Palatine or Heidelberg Confession, 1575; 5. The Belgic Confession, 1559.

The *Thirty-nine Articles* of the Church of England were originally forty-two, and are supposed to have been composed chiefly by Cranmer. In 1571, they were revised and approved by convocation and parliament.

The Westminster *Confession of Faith* was the product of the great Puritan agitation of the 17th c. As soon as the Long Parliament assembled 1640, it set itself to consider the reformation of religion. It carried resolution after resolution against the existing government of the Church of England; and at length, 1641, Nov. 23, it passed the famous Remonstrance in which it proposed that, 'in order the better to effect the reformation in the church, there should be a general synod of grave, pious, learned, and judicious divines, who should consider all things necessary for the peace and good government of the church.' Out of this proposal sprang the Westminister Assembly, though the parliamentary ordinance actually summoning the Assembly was not issued till a year and a half later—1643, June 12. According to this ordinance the Assembly was to consist of 121 clergymen, assisted by 10 lords and 20 commoners as lay assessors. Many of these appointed members, however, never took their seat in the Assembly. The bishops were prevented from doing so by a counter ordinance of the king.

The Presbyterians greatly predominated, and the acts of the assembly bear throughout the stamp of Calvinistic Presbyterianism. It began its sittings in the autumn of 1643, and sat till 1649, Feb. 22, upward of five years and a half, and met 1,163 times.

Its most important labors were the Directory of Public Worship and the Confession of Faith. This latter document was completed in the third year of its existence (1646), and laid before parliament in the same year. It was approved by the General Assembly of the Church of Scotland 1647, and again 1690, on the renewed establishment of Presbyterianism after the revolution.

The Confession of Faith, as it is the latest of the great Protestant creeds, so it is one of the most elaborate. It extends to 33 chapters, beginning with *Holy Scripture*, and ending with *The Last Judgment*. Of these chapters, 21 may be said to be distinctly doctrinal—the first nineteen and the last two. The others concern such subjects as *Christian Liberty, Religious Worship, Oaths and Vows*, the *Civil Magistrate*, the *Church*, the *Sacraments, Synods and Councils*. The tone of the doctrinal chapters is that of the later and formal Calvinism which spread from Holland

among the English Puritans. The ecclesiastical spirit is Puritan-Presbyterian. 'God alone' is declared to be 'Lord of the conscience;' yet the 'publishing of opinions contrary to the light of nature, or to the known principles of Christianity,' is at the same time declared matter of censure by the church, and of punishment by the civil magistrate. In composition, the Confession is an able and comprehensive summary of theological truth, showing great logical skill in the deduction of particular doctrines from certain main principles. The third chapter, *Of God's Eternal Decree,* may be said to be the key-note from which its most characteristic doctrines follow in immediate sequence and harmony. It is well deserving the attention of all students of theology, not only as a remarkable monument of Christian learning, but as the most representative expression of a great spiritual and intellectual movement which has deeply tinged the national thought of Britain, and modified the course of its history. It became the authoritative standard of the Presbyterian churches of Britain and America; but of course was not recognized as authority in Episc. (including Meth. Episc.), or in Cong. (including Bapt.) churches. See PRES. CHURCH. But with the general diffusion of knowledge and independency of thought and investigation the authority of creeds of councils and ecclesiastical convocations has a less binding force in religion than formerly. The continual agitation of the question of revision of these creeds is itself a confession of their imperfection and weakness, qualities alike detructive of authority and unqualified acceptance.

CREEK, n. *krēk* [Dut. *kreek,* a crooked ditch, a small stream having an elbow: Icel. *kryki,* a corner: F. *crique,* a small natural haven: AS. *crecca,* a creek]: a narrow inlet of water from the sea into the land; a sudden bend of a river; a pool in a deserted river-course; a brook; in *Australia,* a dry river-bed; in the *western United States,* the term is applied to small inland rivers. CREEK'Y, a. *-ĭ,* full of creeks; winding.

CREEKS, *krēks:* nation of American Indians, known among themselves as Muskogees, found by whites first in Ala. and Fla. Their traditions asserted that they sprang from the earth in the distant northwest and were led on a long trail to Fla. by the Cussitaw tribe. They settled in a district with numerous creeks and streams, whence the whites gave them the name of C. After several tribes had settled in upper Fla. and Ala., those that remained in the everglades became known as Seminoles. Both the C. and the Seminoles were very numerous and warlike. The former were hostile to the American cause from the beginning of the revolutionary war, through the influence of royalists and traders. At the close of the war congress offered them a choice between a treaty of peace and a declaration of war, and as a result they signed a treaty in New York 1790. At the outbreak of the war of 1812, they were again roused to hostility by the Eng-

lish, and killed 400 men, women, and children at Fort Mimms, 1813, Aug. 30. This led to direct war with the Federal govt., and Gens. Coffee, White, Claiborne, Floyd, and Jackson, defeated them in severe encounters in 1813, Nov. and Dec., and in 1814, Jan. and Mar. They signed a new treaty 1814, Aug., and another 1825, Feb. 25; in the latter ceding their Ga. and Ala. land for an equal quantity in the Indian Terr. and $400,000 in money; but this treaty was subsequently repudiated by them, and the Govt. was compelled to remove them, 1836. Of the total number 24,594 were removed beyond the Mississippi river, and 744 left. e. of it. During the civil war one portion of the C. remained loyal to the govt., defeated the Confederate troops in two battles, and were themselves almost annihilated in a third, while another portion under the head-chief joined the Confederate army. Their present country is divided into independent towns, and governed by the constitution of 1868, by a first and second chief, a house of warriors, and a house of kings. Missions have been established among them by the Presb., Meth., Episc., and Bapt. churches, and a moderate degree of civilization attained. The total number is now about 40,000 of which only 8,000 are of pure Indian blood.

CREEL, n. *krēl* [Scot.: Icel. *kríli*, a basket]: a small wicker-basket used by anglers; a larger basket used by women to carry fish in on the back.

CREEP, v. *krēp* [AS. *creopan;* Dut. *kruipen;* Ger. *kriechen*, to creep: Icel. *kriupa*, to kneel: comp. Gael. *crub*, to crouch]: to move forward on the belly, as an animal without feet; to crawl, as on the hands and knees; to move slowly, feebly, secretly, or insensibly, as time; to grow along, as a plant; to trail. CREEP'ING, imp.: ADJ. having a tendency to creep or the habit of creeping. CREPT, pt. and pp. *krĕpt.* CREEP'ER, n. *-ėr*, a climbing or trailing plant; an instrument with iron hooks or claws for dragging at the bottom of water; a little climbing bird like a woodpecker. CREEP'HOLE, n. *-hōl*, an excuse; a subterfuge. CREEP'INGLY, ad. *-lĭ.* CREEPING-SHEET, the feeding apron of a carding machine.

CREEP'ER (*Certhia*): genus of birds, type of the family *Certhiadæ;* having a longish, slender, arched, and pointed bill; a long, narrow, sharp-pointed tongue, jagged near its tip the tail rather long, and the tips of the tail-feathers firm and pointed, extending beyond the webs. The feet are rather slender; the hinder toe about as long as the other toes. Of this conformation of feet and tail great use is made in climbing trees, the stiff feathers of the tail being used for support. Although the family is large, it is doubtful if the genus contains more than one true species, the COMMON C. (*C. familiaris*), a bird found in all temperate parts of the n. hemisphere wherever wood abounds. It searches for insects and their larvæ in the crevices of the bark, and generally ascends from the root to near the top of a tree before it flies off to another tree or branch. Its note

is monotonous, and often repeated. Its prevalent color is reddish-brown above, different shades being beautifully intermingled, and speckled with white; the under parts white. In Scotland, it is frequently called *Bark-speeler* (Anglicè, Bark-climber).—The WALL Creeper (*Tichodroma muraria*) of the south of Europe, frequents walls and the faces of rocks; it has a more slender bill, and the tail-feathers are not pointed.

CREEPS, *krēps:* miner's term for the depression which results on the surface from the removal of beds of coal beneath. Masses of the coal-seam, like huge pillars, are left by the miners for the support of the superincumbent strata; the pressure, however, of these beds is so great that, in course of time, the ceiling gradually sinks, or, as is more frequently the case, because of the ceiling consisting of hard rock, the softer shale pavement rises, until the intervening spaces between the pillars, left by the removal of the coal, are filled up. A consequent depression takes place in the beds above, as also an alteration of the surface-level. But this being gradual is seldom noticed, except when evident from the accumulation of surface-water, or where railways pass over the coal-fields.

CREESE, n. *krēs:* a Malay dagger—also written KRIS.

CRE'FELD: see KREFELD.

CREMA, *krā'mâ:* town of Lombardy, province of Cremona, on a plain, 25 m. e.s.e. of Milan. Crema has an old castle and cathedral. Pop. (1881) 9,111.

CRÉMAILLÈRE, n. *krĕm'āl yār'* [F. a pot-hanger]: in *fort.*, lines having an indented or zigzag outline, somewhat resembling the teeth of a saw.

CREMATION, n. *krĕ-mā'shŭn* [L. *cremātĭōnĕm*, a consuming by fire—from *cremo*, I burn]: a burning; the burning of the dead. CREMATE, v. *krē-māt*, to burn a dead body instead of interring it. CREMA'TING, imp. CREMA'TED, pp. CREMATORIUM, n. *krĕm'ă-tō'rĭ-ŭm*, a furnace in which the dead may be consumed to ashes.—Cremation was a very early and widespread usage of antiquity. The early Aryans, as opposed to the non-Aryan aborigines of India, Greeks, Romans, Slavs, Celts, and Germans, burned their dead, so that cremation may be regarded as the universal custom of the Indo-European races. (See also 1 Sam. xxxi. 12). The graves of n. Europe throughout the 'bronze age' contain only jars with ashes. It was Christianity that gradually suppressed cremation. In India it is still a usual method for disposing of corpses, and is practiced by numerous uncivilized peoples of Asia and America (see BURIAL). A return to the practice has been strongly insisted on in Europe and America by many in recent years. This is opposed mainly on grounds of sentiment, and for religious reasons, connected, though very vaguely, with the belief in the resurrection of the dead. Advocates of cremation assert that these are prejudices founded on misapprehension, and that the question is solely a sanitary one: inasmuch as burning merely pro-

duces in two or three hours what putrefaction accomplishes through a long period. The damage to the health of those who live near churchyards and cemeteries, from the exhalations of noxious gases and the poisoning of water supplies, is an indisputable fact, and is in many cases quite inevitable. By burning, the body is reduced more swiftly to its constituent elements, without disrespect to the dead, or hurt to the living. As for interference with the resurrection which is the object of Christian faith, reference is made to the burning at the stake of eminent saints and martyrs, e.g., Polycrap, Huss, Latimer, Ridley, and multitudes of others. In Italy cremation has been legal since 1877, and is not unusual at Milan, Lodi, and elsewhere. In Berlin, Dresden, and Leipsig there has been strong agitation in favor of it; and at Gotha there is a large mortuary and crematorium, where between 1878 and '81 upward of 50 dead bodies were consumed by fire. Societies for securing the legalization or furthering the practice of cremation exist in Holland, Belgium, France, England, and the United States. Interest in this movement was awakened in England, 1874, by Sir Henry Thompson: the council of the society established in that year purchased ground at Woking, Surrey, 1878, and there erected a crematory on the principle of that at Lodi. This apparatus reduced part of the carcass of a horse weighing 140 lbs. to 6 lbs. of white ashes in two hours; but a special act legalizing cremation of human corpses is still awaited by the society. The human body consists of 60 per cent. of water and 40 per cent. of solid matter; and quickly to reduce this to ashes requires a strong furnace. A special form of Siemens' regenerator furnace is that which has found most favor.

In 1873 there was a strong agitation in New York more or less echoed in other parts of the United States, in favor of cremation, and the newspapers published numerous opinions of eminent physicians and others to the effect that burial grounds were an injury to the health of the living, especially in populous sections. There was a similar movement in the leading countries of Europe about the same time. In 1876 Dr. F. Julius Le Moyne established the first crematory in the United States, at Washington, Pa., the first incineration being that of the body of Baron de Palin, in December of that year. This was a semi-private institution, the first thrown open to the general public in this country being the Fresh Pond crematory, operated by the United States Cremation Company of New York. Others were built in leading cities, there being a total of 24 at the close of the year 1900, located as follows: Baltimore, Md.; Boston, Mass.; Buffalo, N. Y.; Cambridge, Mass.; Chicago, Ill.; Cincinnati, Ohio; Davenport, Iowa; Detroit, Mich.; Ft. Wayne, Ind.; Lancaster, Pa.; Los Angeles, Cal.; Milwaukee, Wis.; New York (Fresh Pond), N. Y.; Pasadena, Cal; Philadelphia, Pa.; Pittsburg, Pa.; San Francisco, Cal.; St. Louis, Mo.; St. Paul, Minn;. Swinburne Island, N. Y.; Troy, N. Y.; Washington, D. C.;

Washington, Pa.; Waterville, N. Y. The construction of the cinerators or cremation furnaces is commonly of firebrick and iron, there being a fire chamber below and a body chamber above. Coal is the usual fuel, though natural gas has been employed where available. The furnace is arranged to be heated to as great a temperature as 2,500° F., and at this heat a body is consumed in from one to three hours. The greatest mechanical difficulty in connection with incineration has been the disposal of the gases and fluids, and the leaving of the ashes unmixed with foreign substances. All this has been successfully accomplished by perforating the retort or body chamber to allow the gases to escape, and by keeping the fuel flames from direct contact with the body. When the body is removed from the coffin (which is burned separately) it is wrapped in an alum-soaked sheet, and placed in the retort. The weight determines the length of time it is subjected to the heat, but at the proper interval the attendants remove it, and fan out the ashes of the clothing, which are lighter than the bone ashes; then pass a magnet through to remove any iron, and as a result customarily secure from one half to five pounds of pure bone ash, which is sealed in a black tin canister. There is frequently an urn hall in connection with a crematory, having niches in the wall, for storing urns containing the ashes of the dead. Funeral services are often held in this hall Consult Eassie, *Cremation of the Dead* (1875); Colb, *Earth Burial and Cremation* (1892), and *Quarter Century of Cremation in North America* (1902).

CREMIEUX, *krā-me-ĕh'*, Isaac Adolphe: 1796, Apr. 30—1880, Feb. 10; b. Nimes, France, of Jewish parents: lawyer and statesman. He was admitted to the bar in his native town 1817, removed to Paris 1830, and became an advocate to the court of cassation. He soon attained distinction as counsel in political cases; was summoned to Damascus to defend the grand rabbi and others accused of the murder of a Rom. Cath. priest, and secured their acquittal 1840; and was elected to the chamber of deputies, taking his seat with the radical party, 1842. After the revolution of 1848 he proposed a provisional govt., and on its establishment became minister of justice. He soon withdrew from the govt. on account of the institution of proceedings against Louis Blanc, whom he defended, but retained his seat in the assembly. He favored the election of Louis Napoleon to the presidency, but afterward opposed his measures in the assembly; was arrested at the *coup d'état* 1851, Dec. 2, but shortly released; and held aloof from political affairs till 1869, when he was elected to the corps legislatif. In 1870 he opposed the *plébiscite*, and after Sedan became minister of justice in the govt. of national defense; 1873 was elected a member of the national assembly; and 1875 a life senator of the republic. He was the author of the decree which naturalized 30,000 Jews in Algeria, subscribed 100,000 fr. toward the German indemnity, and was the friend of Jews throughout the world.

CREMOLOBUS, n. *krē-mŏl'o-bŭs* [Gr. *kremannumi*, to hang; *lobos*, the lobe of the ear; so called because the fruit, a silicule, is suspended]: genus of *Brassicaceæ*, type of the family *Cremolobidæ*. The species have racemes of yellow flowers and are natives of Peru and Chili.

CREMONA, *krē-mō'na*, It. *krā-mō'nâ:* province of Lombardy, n. Italy, between the rivers Oglio and Adda, n. of the Po. It is abt. 50 m. long from n.w. to s.e., and 15 wide; 632 sq. m. The surface is level and the soil fertile. Silk is an extensive production. Pop. (1871) 300,595; (1881) 302,064; (1890) 305,214; (1901) 327,838.

CREMONA: important city of n. Italy, cap. of the province of C.; on the n. bank of the Po, here crossed by a bridge, about 48 m. s.e. of Milan. It is surrounded by walls with flanking towers and wet ditches, its circumference being nearly 5 miles. A canal uniting the Oglio and the Po passes through the city; and the latter river is navigable for large boats from this point to the sea. The streets of C. are wide and regular, and it has some fine buildings—the principal of which are the cathedral, dating partly from 1107, but in various styles of architecture; several other churches; the Palazzo Publico, Campo Santo, and the Torazzo or belfry—one of the loftiest and finest towers in Italy, 396 ft. high, commanding magnificent views over the fertile plains of Milan. By means of the Po, C. carries on considerable trade in the produce of the district; and it has manufactures of silk, cotton, earthenware, and chemicals. It was formerly greatly celebrated for its manufacture of violins, the most famous maker being Amati, in the beginning of the 18th c. Pop. (1881) 31,930; (1893) 37,400; (1901) 37,693.

CRENATE, a. *krē'nāt*, or CRE'NATED, a. [mid. L. *crena*, a notch; *crenātus*, notched: F. *créné*]: notched; in *bot.*, having a series of rounded marginal prominences. CRENATURE, n. *krĕn'ă-tūr*, in *bot.*, a notch in a leaf or style. CRENELATE, v. *krĕn'ĕ-lāt* [mid. L. *crenellātus*, furnished with loopholes: F. *crénelé*, embattled]: to provide with loopholes, as in a castellated building, through which missiles might be shot; to furnish with a parapet. CREN'ELATED, a. furnished with loopholes; in *arch.*, applied to a kind of indented molding. CRENELLE, n. *krĕn-ĕl*, sometimes a battlement; usually the embrasures in a battlement (q.v.). CRENELLÉ, a. *krĕn-ĕl-lā*, in *heraldry*, applied to any ordinary drawn like the battlements of a wall. CREN'ULATE, a. *-ū-lāt*, in *bot.*, having the edge slightly scalloped or notched.

CRENIC ACID, n. *krĕn'ĭk* [Gr. *krēnē*, a spring]: one of the constituents of vegetable mold; produced wherever leaves and other plant matter are decaying, especially in peat-bogs and marshes.

CRENILABRUS, n. *krē-nĭ-lā'brŭs* [L. *crena*, a notch; *labrus*, an unknown fish]: genus of spiny fishes belonging to the family *Labridæ*.

CREOLE, n. *krē'ōl* [F. *créole*]—from Sp. *criollo*, a creole,

properly, nursed, grown up—from *criar*, I breed]: in Louisiana, Sp. America, W. Indies, and Mauritius, denotes in its widest sense, any one born in the country, but of a race not native to it. It is usually applied, however, to persons born in the colony or country, of pure European blood, as distinguished both from immigrant Europeans, and from the offspring of mixed blood. In Brazil, a native, but of African parents.—CREOLE LANGUAGES are corruptions of Dutch, French, Spanish, Portuguese, English, arising in various colonies.

CREOPHILUS, n. *krē-ŏf'il-ŭs* [Gr. *kreas*, flesh; *philos*, a friend]: genus of beetles belonging to the order *Staphylinidæ*.

CREOSOTE: see CREASOTE.

CREPANE, n. *krē'pān*, or CRE'PANCE, n. *-păns* [L. *crepārĕ*, to crack]: a chop or scratch in a horse's leg caused by the shoe on one hind-leg striking the other.

CREPIDODERA, n. *krĕp-ĭ-dŏ-dēr'a* [Gr. *crēpis*, a half boot worn by men; *deros*, skin (?)]: genus of beetles, family *Chrysomezidæ*. It is akin to Haltica.

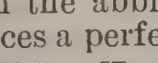
CREPIDULA, *krĕ-pĭd'ū-la* [L. a small sandal, dim. of *crepida*, a slipper or sandal]: genus of gasteropodous mollusks, family *Calyptræidæ* (Bonnet Limpets).

CREPITATE, v. *krĕp'ĭ-tāt* [L. *crepĭtātus*, crackled or creaked: It. *crepitare*]: to make a small crackling noise, as salt suddenly thrown on a fire. CREP'ITATING, imp. CREP'ITATED, pp. CREP'ITA'TION, n. *-tā'shŭn* [F.—L.]: a small sharp crackling noise, as salt thrown on a fire; in *med.*, a similar sound heard in inspiration at the commencement of pneumonia.

CREPT, v.: see under CREEP.

CREPUSCULARIA, n. *krē'pŭs-kū-lâr'i-a* [L. *crepusculum* the twilight, and pl. adj. suf. *-aria*]: tribe of lepidopterous insects, including those called Sphinxes or Hawk-moths. They are twilight fliers: see LEPIDOPTERA.

CREPUSCULE, n. *krē-pŭs'kūl* [L. *crepus'cŭlum*, twilight, dusk—from *creper*, dusky, dark: It. *crepuscolo:* F. *crépuscule*]: twilight. CREPUS'CULAR, a. *-kū-lĕr*, pertaining to twilight; glimmering; also CREPUS'CULOUS, a. *-lŭs*, and sometimes CREPUS'CULIN, a. *-lĭn*. CREPUS'CULAR, a. applied to animals that are active in the dusk or twilight.

CRESCENDO, n. *krĕs-sĕn'dō* [It.—from L. *cresco*, I grow, I increase]: in *music*, gradual increasing of sound, or changing from piano to forte and fortissimo. It is marked thus  , or with the abbreviation *cresc.* The swell of a good organ produces a perfect crescendo.

CRESCENT, n. *krĕs'sĕnt* [L. *crescen'tem*, growing or increasing: F. *croissant:* It. *crescente—lit.*, a thing in a state of increase or growth]: the moon in the form of a curve, broad in the centre and tapering toward the two ends, called the horns; anything so shaped, as a block of buildings or houses; emblem of progress and increase; the emblem on the national standard of Turkey, in the form of a

hollow half-moon; the Turkish power, as the 'Crescent and the Cross;' the crescent was the emblem of the Greek before it became that of the Turkish rule; and is still seen surmounted by the cross on churches in Moscow and elsewhere in Russia: ADJ. growing. CRES'CENTED, a. adorned with a crescent; crescent-like; crescent-shaped. CRESCEN'TIC, a. *sĕn'tĭk*, in the shape of a crescent. CRESCIVE, a. *krĕs'sĭv*, in *OE.*, increasing; growing. CRESCENTADE, n. *krĕs'en-tād* [Eng. *crescent;* and suf. *-ade*, a word modelled after the manner of *crusade*]: a religious war waged in defense of 'the Crescent,' i.e., of the Mohammedan faith.

CRESCENT, in Heraldry, is used both as a bearing or charge, and as a difference, or mark of cadency. In the latter case, it designates the second son, and those that descend from him. See CADENCY.

CRESCENT, TURKISH ORDER OF THE: order of knighthood conferred by the sultan. In 1799, after the battle of Aboukir, Sultan Selim III. testified his gratitude to Nelson by sending him a crescent richly adorned with diamonds. It was not intended as an order, but Nelson wore it on his coat, and called himself the knight of the crescent. Selim was flattered by the value attached to his gift, and resolved, 1801, to found the Order of the Crescent. Mohammedans being forbidden in the Koran to carry such marks of distinction, the order is conferred only on Christians who have done service to the state. See MEDJIDIE. ORDER OF.—There was an old order of the Crescent instituted by René, Duke of Anjou, 1464.

CRESCEN'TIA: see CALABASH TREE.

CRESOL, *krē'sŏl*, or CRESSOL, an aromatic compound having the formula $C_6H_4(CH_3)OH$, which may be regarded as derived from phenol by the substitution of methyl (CH_3) for one of the hydrogen atoms in the benzene nucleus. Like all di-substitution benzene compounds, cresol exists in three isomeric modifications, known respectively as orthocresol, metacresol, and paracresol. All three occur in coal-tar, though the ortho- and para-compounds are present in much larger quantity than the meta-compound. The ortho- and meta-compounds readily yield nitroso-derivatives, and are used in the manufacture of coal-tar colors. Ortherersol melts at 90°, and boils at 370°; metacresol is liquid at ordinary temperatures and boils at 394°; and paracresol melts at 97° and boils at 390°; all these temperatures being on the Fahrenheit scale.

CRESPI, GIUSEPPE MARIA, *joo-sĕp'pĕ mä-rē'ä*, Italian painter, surnamed LO SPAGNUOLO: b. Bologna 1665; d. there 1747, July 16. His first work was the *Combat of Hercules with Antæus.* From this time he had continual employment. Among his works is the *Seven Sacraments*, now in the Dresden gallery. Crespi has been frequently censured for the singular ideas which he often introduced into his paintings.

CRESS.

CRESS, n. *krĕs* [AS. *cærse;* Dut. *kersse;* Ger. *kresse;* Sw. *krasse*, a cress: comp. F. *cresson*, a cress—from L. *crescĕrĕ*, to grow—*lit.*, a plant which grows quickly]: salad-plant.—Cress is a name given to many plants of which the foliage has a pungent, mustard-like taste and is used as a salad. It is sometimes more strictly confined to the genus *Lepidium*, genus of the nat. ord. *Cruciferæ*, having small white flowers, and oblong or rounded laterally compressed pouches (silicules), with the cells one-seeded, and the valves keeled or winged on the back. The Common cress, or Garden Cress (*L. Sativum*), is an annual, native of the East, frequently cultivated in gardens, and used young as a salad; being easily procured in a few weeks from the time of sowing, and, by the aid of a little artificial heat, even in winter. There is an esteemed variety with curled leaves. Like most other plants of similar pungent taste, particularly those of the order *Cruciferæ*, the garden cress is powerfully anti-scorbutic. Still more pungent, and almost like pepper in taste, is its congener, Pepperwort, *Dittander*, or *Poor Man's Pepper* (*L. latifolium*), found in wet places near the sea, and occasionally used as a condiment. It was formerly in high repute as a remedy for various diseases. Virginian Cress (*L. Virginicum*) resembles the garden cress in its properties, is eaten as a salad, and used as a diaphoretic medicine in N. America and the W. Indies. *L. piscidium*, native of the South Sea Islands, is there used to stupefy fish; it is also one of the plants used by sailors for prevention or cure of scurvy. The name Winter Cress is given to species of the genus *Barbarea*, also cruciferous biennial or perennial plants, with racemes of yellow flowers, quadrangular pods, and lyrate or pinnate leaves. The Common Winter Cress (*B. vulgaris*), formerly known as Herb St. Barbara, is plentiful in moist pastures throughout Europe and N. America. It is occasionally cultivated as a winter salad; in Sweden it is used as a boiled vegetable. Its pungency is combined with some degree of bitterness. A double variety is common in flower-borders, and bears the name of Yellow Rocket. Very similar to this, and also occasionally cultivated, is the Early Winter Cress, or American Cress (*Barbarea præcox*), native also of Britain, the continent of Europe, and N. America. Bitter Cress (*Cardamine*) is another cruciferous genus, with linear pods, and flowers sometimes of considerable beauty, as in the common Bitter Cress or Cuckoo-flower (*C. pratensis*), known also by the name Lady's Smock—a very common ornament of moist meadows in Britain, with white, blush-colored, or light purple flowers; the flowers of which are stimulant and diaphoretic, and had at one time high reputation for the cure of epilepsy, particularly in children, and still retain a place in the pharmacopœias. The young leaves of this species, as well as of *C. amara*, a species with still more beautiful flowers, and *C. hirsuta*, a small-flowered species, are used as salads, especially on the European continent; they are pungent with a little bitterness. The leaves of *C. amara* are

brought to market in large quantities in Bohemia and Saxony. The juice of *C. pratensis* is much used as an anti-scorbutic in the north of Europe, to counteract the effect of the constant use of salted meat and salted fish. WATER C. (*Nasturtium officinale*) is a perennial aquatic cruciferous plant, much used as a spring salad. The genus *Nasturtium*, which contains a considerable number of species, has a spreading calyx, and a nearly cylindrical pod. *N. officinale* is a native of almost all parts of the world. The leaves have a pungent bitterish taste, with a little saltness. They possess medicinal properties similar to those of SCURVY-GRASS. In favorable weather, they may be procured in winter as well as in spring, and may be frequently cut over during a season. The plant is cultivated to some extent in wide ditches filled with slowly flowing and pure water. It grows best in clear shallow running water, with a bottom of sand or gravel. Mud is injurious both to its growth and to the flavor of its leaves. For INDIAN CRESS, see TROPÆOLUM.

Water-Cress (*Nasturtium officinale*).

CRESSELLE, n. *krĕs-sel'* [F. *crécelle*, a rattle]: in *Rom. Cath. Ch.*, a rattle used in the three last days of Holy-week instead of bells.

CRESSET, n. *krĕs'sĕt* [Dut. *kruysel;* OF. *croiseul*, a hanging lamp: F. *creuset*, a melting-pot—from OF. *crasset*, a cresset: connected with *crock, cruet, cruise*, and *crucible*]: a large open lantern or pot fixed on a pole, and filled with combustible materials; a great light set on a beacon or watch-tower; the grating within which the light or fire is kindled. The name is by some ascribed to the fact that beacons formerly were often surmounted by the cross.

CRESSON, *krĕs'on:* village and popular summer resort of Cambria co., Penn., on the Penn. railroad, 15 m. s.w. of Altoona, 102 m. east of Pittsburg, 252 m. by n. of Philadelphia. It is on the summit of the Alleghany Mountains, 2,300 ft. above the sea, is provided with numerous hotels, and has excellent drives and several springs of mineral water in its vicinity.

CRES'SON, ELLIOTT: 1796, Mar. 2—1854, Feb. 20; b. Philadelphia: philanthropist. From an early age he applied himself to the task of ameliorating the condition of the Indians and negroes. He established the first colony of liberated American slaves on the Grain coast of w. Africa.

became pres. of the Penn. Colonization Soc., and in its interests made tours of New England 1838–9, the Southern states 1839–40, and Great Britain 1840–42, 1850–53. He made a large fortune in mercantile business, and bequeathed over $150,000 for benevolent purposes.

CRESSY: see CRECY.

CREST, n. *krĕst* [OF. *creste*—from L. *crista*, the tuft or plume on the head of birds: akin to Gr. *keras*, a horn: It. *cresta*]: the plume of feathers or a like ornament on the top of an ancient helmet; the helmet itself; the comb or tuft of feathers on the head of a bird; pride; courage; the figure or device that surmounts a coat of arms; the foamy top of a wave; the highest part of a hill or ridge; in *mil.*, the line which marks the top of a parapet: V. to mark as with a crest; to adorn with as a crest. CREST'ING, imp. CREST'ED, pp.: ADJ. adorned with a tuft or crest; in *heraldry*, applied to a cock or other bird, having its comb of a different tincture from its body—said to be crested of such a tincture (naming the tincture). CREST'LESS, a. CREST'FALLEN, a. dispirited; dejected—in allusion to the flabby appearance of the crest or comb of a defeated cock.

CREST, in Heraldry: device surmounting a coat of arms. Though popularly regarded as the most important feature in heraldic emblems, the C., in the eyes of heralds, is an external adjunct to the shield, without which the bearing is complete, and which may consequently be altered without materially affecting its significance. Occupying the highest place on the helmet (see illustration), it is the member of the bearing by which the knight was commonly known in battle; hence, to it the term *cognizance* (from *cognosco*, to know) is properly given. Its claim to a classical origin is probably better than that of any other portion of coat armor. Jupiter Ammon is represented as having borne a ram's head on his helmet, and Mars the figure of a lion a or tiger. Alexander the Great, on the pretence that he was sprung from Jupiter, assumed the ram's head; and Julius Cæsar bore a star, to denote that he was descended from Venus. The helmet, as represented on ancient statues and gems, was frequently adorned with a crest. Sometimes it was of horse-hair; at other times a lion or other animal was placed on the helmet, either erect or couchant.

Helmet and Crest of Roger de Quincy, Earl of Winchester.

Newton, in his *Display of Heraldry*, says that the first C. found in the monuments of English chivalry, is that on the great seal of Richard Cœur de Lion. The helmets in this instance, and in that of Roger de Quincy, Earl of Winchester, differ in form from those afterward used, the C. occupying a much larger space. Crests are said to have come into general use about the time of Henry III., and to have been used as marks of distinction by commanders in the holy wars, as

they had formerly been by the Roman centurions. For lightness they were often made of stuffed leather, gilt, silvered over, or painted—which explains their greater size then than in later times, when they were made either of wood or metal. The earliest example of the wreath on which the C. is now invariably placed, is that on the monument of Sir John Harsick. It consisted of two pieces of silk, of the colors of the armorial bearings of the wearer, twisted together by the lady who had chosen him for her knight. Though crests are now invariable appendages to shields, and many of them are appropriated to particular families by hereditary descent, they are believed to have been originally assumed at the pleasure of the wearers; and they are even now less strictly under the cognizance of the heralds than the devices on the shield, which must always be assigned by competent authority. Crests are so various that a classification of them is scarcely possible. The following is an abridgment of that given by Newton, who has written very fully on the subject in his *Display of Heraldry*. The most ancient class of crests he believes to have consisted of ferocious animals, regarded as figuratively representing the bearer and his pursuits. Secondly, they were devices assumed as memorials of feats of chivalry, and for perpetuating traditions and family legends, either in addition to, or differing from, those represented on the shield. Thirdly, they served only to give a more prominent place to objects already represented on the shield. Fourthly, they commemorated religious vows, or expressed the religious or knightly aspirations of the bearer. Fifthly, they were mere whims, and were adopted for no definite reason. As the same C. might be adopted by persons not only unconnected by family, but of different names, they no longer served the purpose of distinction when separated from the shield. To this latter class belong the vast majority of modern crests assumed at the suggestion of seal-engravers and coach-painters.

The lion assumed by Richard I., during the crusade in the Holy Land, to express the bravery for which he was proverbial, was borne by Edward III., Henry VII., Edward VI., and James I.; and since that time has been recognized as the appropriate C. of the royal family of England. In early times, the same C. was not always borne even by the same person. Besides the lion, Edward III. occasionally bore a white raven crowned; and other monarchs made use of similar additions. Anciently, the nobility mostly bore plumes of feathers. But several of the Earls of Warwick, of the Beauchamp family—the last of whom died 1445—bore for C. a bear with a rugged staff muzzled, collared, and chained, as still seen on signs (see woodcut). The origin of the wreath has been already mentioned. It is now represented as consisting of two stripes of gold

or silver lace, twisted into a circular cord. Its tinctures are always those of the principal metal and color of the arms. It is a rule in delineating the wreath, which is shown edgewise above the shield, that the first coil shall be of metal, and the second of color. Civic, triumphal, and other crowns were used as wreaths; and this practice is supposed to have given rise to the use of coronets, out of which crests are sometimes represented as issuing, even in the case of persons who are not noble.

CRESTE, in Architecture: ornamental finishing, either carved in stone, or of tiles along the top of a wall, or the ridge of a roof. *Crest-tiles*, or, as they are corruptly called, Cress-tiles, or Crease-tiles, are frequently in the form either of small battlements or Tudor flowers, as in the accompanying illustration from Exeter Cathedral; see COPS.

CRESTON, Iowa, a city and county-seat of Union co., about 200 m. w. of Burlington, on the Chicago, Burlington & Quincy R.R. It was first settled in 1869; became a borough in 1871, and a city in 1881. The present form of government is by State enactment under a charter, which provides for a mayor and a council of 10 members. Five aldermen are elected each spring. The city has three banks, with a combined capital of $250,000; 15 churches, public and parish schools, a government building, costing $100,000, and a railroad depot, costing $75,000. It is a trade centre for the surrounding country and has machine shops, brickyards, broom and cigar factories, wagon works, etc. Pop; (1910) 6,924.

CRESWICK, PAUL, English writer: b. 1866. He entered the life assurance business at 16 and is now in the head office of the Prudential Assurance Company, London. He has published: *At the Sign of the Cross Keys; The Temple of Folly; Bruising Peg; Under the Black Raven; Robin Hood* (1902); *In Alfred's Days*.

CRESWICK, *krĕs'wĭk*, THOMAS, R. A.: 1811–69; b. Sheffield: one of the best and most popular of recent English landscape-painters. In his 17th year he removed to London, to study drawing and painting; but already he had so far advanced, that two of his pictures were, during that year, admitted into the Royal Acad. exhibition. Creswick loved to paint the beautiful streams, and glens, and wooded dells of his native land. His landscapes present the freshness of nature. Among his greatest works are *England, London Road a Hundred Years Ago*, and the *Weald of Kent*. His knowledge of aërial perspective was unsurpassed. Creswick painted also some admirable seaside studies. He was elected assoc. of the Royal Acad. in 1842, and R.A. 1851.

CRESYLIC ACID, n. *krĕs-ĭl'ĭk* [from *creasote;* and Gr. *hulē*, matter of which a thing is made]: an acid obtained from creasote, a good antiseptic and disinfectant.

CRETACEOUS, a. *krē-tā'shŭs* [L. *cretācĕŭs*, chalky—from *creta*, chalk]: composed of chalk; chalky.

CRETA'CEOUS SYSTEM, or CHALK FORMATION, in Geology: the upper strata of the Secondary series, immediately below the Tertiary beds, and resting on the Oolite. This group is separated from the Eocene Tertiary beds by a decided change in both the rocks and fossils. The Eocene strata rest unconformably upon the chalk; it is, however, more than probable that a number of beds may yet be discovered to fill up the apparent gap in the sequence of the rocks.

The C. S. covers a large surface in Europe and the east of Asia; beds of the period are extensive also in N. and S. America. The typical strata occur in the south-east of England, and are connected with similar beds in the north of France and Germany, and in Denmark. Indeed, the bed of the German Ocean seems to be composed of rocks of this group, as is evidenced by the masses of chalk and flint thrown on the shores of Scotland after storms.

The strata of the group have been arranged in the following order. The maximum thickness of the divisions is given in feet.

Upper Cretaceous	1. Maestricht	[illegible]
	2. Upper chalk with flints	500
	3. Middle chalk without flints	600
	4. Lower chalk, ox chalk marl	100
	5. Gault and upper greensand	300
Lower Cretaceous	6. Lower greensand	590
	7. Wealden	2,000

1. The Maestricht beds (q.v.) consist of pisolitic limestones in the north of France, and of loose yellowish sandstones in Holland. 2. The chalk with flints is a great mass of pure white pulverulent limestone, usually too soft for a building-stone, but sometimes passing into a more solid state. It occurs in beds of great thickness, with the stratification often obscure, except when rendered distinct by interstratified layers of flint a few inches in thickness, occasionally in continuous beds, oftener in nodules, and recurring at intervals of two to four ft. from each other. Iron pyrites is found frequently in these beds in radiated nodules; it readily decomposes, and produces rusty stains on the rock. 3. Chalk without flints; this differs from the upper chalk only in the want of flints. 4. Lower chalk, or Chalk Marl; the white chalk, by the gradual admixture of argillaceous matter, becomes hardened, until it passes into a pale buff-colored marl or argillaceous limestone, sometimes of sufficient compactness to be used as a building-stone. 5. Upper Greensand (see GREENSAND), composed of alternating layers of sands, clays, and limestones, occasionally colored with green particles of a chloritic mineral. Gault, which is a stiff dark clay with many beautifully preserved shells, was formerly believed to be a separate stratum, always underlying the upper greensand. 'It has now, however, been ascertained that the greater part of Gault and the greater part of the upper greens and are really equivalents of

each other, formed contemporaneously under different conditions of sedementation.'—Geikie. 6. Lower Greensand (q.v.) very similar petralogically to the Upper Greensand; but the two may be distinguished by their organic contents. The Specton Clay, a local Yorkshire bed of dark clay, is of the same age. 7. Wealden (q.v.) divided into two groups, the Wealden clay and Hastings sand, consists of a great series of shales and sandstones, with scattered beds of lime and ironstone.

A different classification of the strata has been adopted by Continental geologists and by some English geologists. It is as follows:

Continental Cretaceous	Equiv. English Strata
Danian	Wanting
Senomian	Upper chalk
Turonian	Middle chalk
Cenomanian	Lower Chalk and Ch. Marl Chloritic Marl Upper Greensand
Albian	Gault
Neocomian	Lower Greensand Wealden

The most remarkable petralogical characteristic of the group is the chalk, which exists in such abundance as to have given its name to the formation. It is a white, soft, and pulverulent limestone, consisting almost entirely of carbonate of lime; the only foreign matter in any quantity being silex, which is aggregated together in an amorphous condition, in nodules or layers of flint. Occasional pebbles are found, but they are extremely rare. Chalk was formerly supposed to be a chemical precipitate: the microscope has, however, shown it to be composed of minute shells mixed with the broken fragments of larger ones; and, very recently, the use of an improved deep-sea sounding apparatus has revealed a sediment now accumulating in many places, which agrees in every point, save solidity, with the chalk. When a piece of white chalk is rubbed down to powder with water, by means of a soft brush, and the powder examined by the microscope, it will be found that the greater portion consists of shells of the minuter kinds of Foraminifera, mixed with the disintegrated prisms of Pinna or other large shells of like structure, the shells of Cytherina, a marine Entomostracan, and probably a few Diatoms. Deep-sea soundings have disclosed a formation precisely similar, taking place at the present time. The occurrence of pebbles in the chalk can easily be accounted for, if we suppose them to have been floated in, attached to the roots of trees, or more probably to sea-weeds. It is more difficult to account for the origin of the flint. Prof. Bailey found that some seas, especially in the Arctic regions, supplied an enormous quantity of the siliceous frustules of the Diatomaceæ, and spicules of sponges. That such organisms may have been converted into the flint nodules seems very probable, when we remember that many of the nodules have the external conformation of sponges, and show occasionally also the internal structure. Mr. Bowerbank's microscopic

examination of flint nodules, seems to lead to the conclusion that all flints are produced from the siliceous skeletons of organic beings. Chalk, then, seems to have been a deposit in very deep seas, far out of the reach of land-currents, which would certainly have brought with them argillaceous and arenaceous debris.

The C. S. is highly fossiliferous. The remains of plants are abundant in the fresh-water Wealden beds; among them have been found fragmentary portions of dicotyledons. Except the microscopic Diatomaceæ, frequent in the white chalk, vegetable remains are rare in the other members of the group. The various divisions of the animal kingdom are represented in the organic remains of the chalk, except the warm-blooded vertebrata, which have hitherto—if they existed—escaped notice. Foraminifera were enormously abundant in the seas, and active in the secretion of the soluble carbonate of lime, fixing it in their minute shells, which, after their death, as has been shown, formed the principal material of the chalk. In the lower beds, Polyzoa have been found in great abundance on the continent. Echinoderms are in immense numbers, and beautifully preserved. Crustacea are occasionally found. Of mollusca, the Brachiopoda and Cephalopoda are especially abundant, both being pelagic types. Ctenoid and Cycloid fishes appear in this group for the first time, though yet in small numbers—the Placoids and Ganoids being still the predominant forms. Reptiles, though not so numerous as in the former period, were yet far from rare. For further details of the fossils, see DIATOMACEÆ: VENTRICULITES: FORAMINIFERA: TEREBRATULA: RHYNCHONELLA: HIPPURITTES: AMMONITES: PTYCHODUS: MOSOSAURUS: PLESIOSAURUS: etc.

In the United States and other parts of the American continent, the C. S. is distinguished by an absence of the pure chalk of w. Europe, and the presence of vast beds of greensand or marl, composed of mineral glauconite. It is largely developed along the e. coast of the United States from Mass. to the Rio Grande river, in the s. from Ky. to the Gulf of Mexico, in the w. from Tex. to Dakota, and between the Miss. river and the Rocky Mountains, along the Pacific coast as far n. as Vancouver's Island, and in the extreme n. in the vicinity of the Mackenzie river. It exhibits three distinct forms, viz.: marl in N. J., limestone in the Gulf region and in many places in the w., and coal in Col., New Mex., Wyoming, Utah, and Vancouver's Island. In thickness the deposits vary from 500 ft. in N. J. to 800 in Tex., 2,000 in Alabama, somewhat more than that in the n.w., and 9,000 in the Rocky Mountain region. The organic life of the system is represented by fossils of flora and fauna including 100 species of the earliest forms found on the continent, a large proportion of which are similar to the forms of the present day, such as the beech, maple, palm, oak, willow, fig, tulip, hickory, sassafras, etc.; by at least 15 species of mollusca; nearly 100 species of fish; 40 species of sea serpents; 9 species of birds; and a great number and variety of reptiles.

CRETAN, n. *krē′tăn* [Gr. *Krētē*, Crete; *krētikos*, pertaining to Crete]: an inhabitant of the island of Crete or Candia. CRETIC, n. *krē′tĭk*, a poetic foot of a short syllable between two long, thus – ∪ –. CRETISM, n. *krē′tĭzm* [Gr. *kretismos*, lying]: the practice of the Cretans; a falsehood.

CRETE: see CANDIA.

CRETINISM, n. *krē′tĭn-ĭzm* [F. *crétin*, a word of Swiss origin, and the same as F. *chrétien*, a Christian]: form of arrested growth, both mental and physical, due to a congenital lack of secretion of the thyroid gland. It occurs in endemic form in certain mountainous regions affecting those living in deep valleys, but it is also seen in sporadic form elsewhere. The subjects of cretinism are of diminutive stature and markedly deficient mentally—idiots. In countries where cretinism prevails extensively among the children there are also to be found many adults suffering from goitre, or hypertrophy of the thyroid gland. The cause of cretinism is unknown, though it is believed to be present in the water supply. The disease is a congenital myxedema (q.v.) and its treatment is the same as that of the adult form, namely the adminstration of an extract made from the thyroid gland of the sheep. Under this treatment, which must be continued throughout life, the condition improves rapidly, and if it is begun early the cretin may be so far restored physically and mentally as to become a useful member of society.

CRETONNE, n. *krĕ-tŏn′* [F. linen cloth—said to be named after the inventor]: a fabric woven with flax and hemp; a woven, flowered material of fine wool or cotton, used for curtains, bed-furniture, etc.

CREUSE, *krėz:* river in the centre of France. It rises in the mountains on the s. border of the dept. of Creuse, and flows in a generally n.n.w. direction through that dept., then a n. and w. through Indre, and dividing the departments Vienne and Indre-Loire, falls into the Vienne, a tributary of the Loire, about 12 m. n. of Chatellerault, after a course of about 150 miles.

CREUSE: department of France, named from the river Creuse; lat. 45° 39′–46° 26′ n., and long. 1° 24′–2°36′ e.; abt. 2,150 sq. m. Low mountains and chains of hills occupy the greater part. The streams, with the exceptions of the Creuse, are insignificant. The climate is moist and variable, and the soil thin and light in the southern hilly district, which is interspersed with stretches of heath and pasture, but better in the lowlands of the north-east. The products are rye, buckwheat, oats, and potatoes; but agriculture is backward and the rearing of cattle is the chief rural industry. Large quantities of chestnuts and fruit are grown. The minerals are not important. The people of Creuse are slightly educated, and use a coarse patois; but are generally industrious, and annually migrate in large numbers to find work in various parts of France. Creuse is divided into the arrondissements Au-

busson, Bourganeuf, Boussac, Guéret, with Guéret for its capital. Pop. 277,831.

CREUX, n. *krô* [F. *creux*, hollow—from mid. L. *crosum* —from L. *corrōsus*, gnawed or eaten into]: anything engraved or sculptured by excavation or hollowing out—the reverse of *relief*.

CREUZ, *kroyts*, Friedrich Casimir Carl von, b. 1724: d. 1770. A German psychologist who defended the doctrine that psychology, like the other empirical sciences, should be based upon experience and not upon speculation.

CREUZER, *kroyt'sėr*, George Friedrich: 1771, Mar. 10—1858, Feb. 15; b. Marburg: German philologer. He studied at Marburg and at Jena. In 1802, he was appointed prof. at Marburg, and in 1804 obtained the chair of Philology and Ancient History at Heidelberg, which he occupied 44 years. In 1848, he retired into private life, and died at Heidelberg. Creuzer's whole life was devoted to the study of antiquity. His first, and probably his greatest work, was *Symbolik und Mythologie der alten Völker, besonders der Griechen* (4 vols. Leip. 1810–12). This treatise, which asserted the symbolical character of ancient mythologies, excited a lively controversy, in which Hermann and Voss appeared as the opponents of Creuzer. His work next in importance was a complete edition of the works of Plotinus (3 vols. Oxford 1835). With G. H. Moser, Creuzer edited several works of Cicero—*De Natura Deorum* (1818), *De Legibus* (1824), *De Republica* (1826), and *De Divinatione* (1828), etc. He published 1837–48 a partial collection of his writings in 10 vols. (*Deutsche Schriften*. Leip. and Darms.), the last of which contains an autobiography of Creuzer under the title *Aus dem Leben eines Alten Professors*. He was also the writer of essays on archeological topics too numerous to be mentioned. In 1854 appeared *Friderici Creuzeri Opuscula Selecta*.

CREUZOT, Le, *lĕh-krėh-zō'*: town of France, dept. of Saone-et-Loire, 12 m. s.s.e. of Autun. It is in the midst of a district rich in coal and iron, and has large iron foundries, which turn out cannon, anchors, steam-machinery, etc., and which employ 10,000 workmen. There is also a glass manufactory. Pop. (1901) 30,584.

CREVASSE, n. *krĕ-văs'* [F. *crevasse*—from *crever*, to burst]: a deep crevice—usually applied to rents in glaciers; [U. S.] a break in the embankment of a river.

CREVAUX, Jules Nicolas, *zhül nĭk-ōlä krā-vō*, French explorer: b. Lorquin, Lorraine, 1874, April 1, d. 1882, April 24. He took part in the Franco-Prussian war, and was later made a surgeon in the navy. In 1876 he turned his attention to the exploration of South America; he first crossed the Tumachumac Mountains; then explored the valley of the Oyapok and its tributaries and several tributaries of the Amazon. In 1880 he crossed the cordilleras of the Andes and reached the Orinoco by the Guaviare River, a tributary never before explored. He returned to

France for a short time, but in 1882 started on another expedition, intending to explore the upper part of Paraguay and some of the southern tributaries of the Amazon; when he arrived at Buenos Ayres he became interested in a plan for the exploration of the Gran Chaco and the Pilcomayo river, and joined an expedition for that purpose. He and all but two of his companions were murdered by the Tobas Indians on the banks of the Pilcomayo..

CREVECOEUR, *krĕv-kĕr'* (*Heart-breaker*): Dutch port in the province of North Brabant, on the left bank of the Meuse, where this river receives the Dieze, about 4 m. n.n.w. of Bois-le-Duc. It figures somewhat prominently in the wars of the Dutch and Spaniards.

CRÈVECŒUR, *krāv-kĕr'*, Hector Saint John de: 1731–1813; b. Caen, France: author. He studied agriculture and political economy in England, removed to the United States 1754, and engaged in farming near New York. He suffered severely from British marauders during the occupation of New York, was several times compelled to flee for his life, and when about to sail for Europe with the permission of the British authorities was arrested as a spy and held three months. He returned to the United States as consul-gen. of France 1783, and was cordially received by Washington and others. He was author of *Lettres d'un cultivateur Américain* (3 vols. Paris 1784); *La culture des pommes de terre;* and *Voyage dans la haute Pensylvanie et dans l'état de New York* (2 vols. Paris 1801). He introduced the cultivation of American potatoes in Normandy.

CREVICE, n. *krĕv'ĭs* [F. *crevasse*, a burst, a gap—from L. *crepārĕ*, to crack]: a crack; rent; an opening.

CREVILLENTE, *krā-vēl-yĕn'tā:* town of Spain, province of Alicante, about 20 m. w.s.w. of the city of that name. It is at the foot of the hills forming the boundary of Murcia; has a population of about 8,000. The people are chiefly engaged in weaving and in agricultural pursuits. Pop. abt. 8,000.

CREW, n. *krô* [Icel. *krú*, a swarm: W. *crwd*, a round lump: Dut. *kruyden*, to thrust, to crowd forward: Lith. *kruwa*, a heap, as of stones or people—*crew* is connected with *crowd* and *curd:* comp. Gael. *crò*, a circle, a group of children]: a circle or company associated for any purpose; the body of seamen that man a ship; applied in a bad sense to a company or band of persons.—Syn.: band; company; gang; association; society; throng; assemblage.

CREW, of a Ship: collective name for all the persons employed therein, but usually limited to designate petty officers and seamen only. In men-of-war, the entire crew are divided into five groups: 1. Commissioned and warrant officers; 2. Chief petty officers; 3. First-class working petty officers; 4. Second-class working petty officers; 5. Able seamen, ordinary seamen, landsmen, and boys. In the very largest war-steamers now afloat, there are upward of 152 different ranks, grades, or offices among the crew,

excluding officers and mariners. In sea-going passenger and freight steamers, the number of hands is relatively greater than in sailing vessels, owing to the various duties relating to the machinery; a steamer of 1,000 tons will have as many as 60 or 70 hands, if bound for a long voyage.

CREWE, *krū:* town in the south of Cheshire, forming a central station of five important railways, to which it owes its present importance. The inhabitants are chiefly employed in the railway stations, and in the manufacturing of railway carriages and locomotives. About 1840 there were only two or three houses where Crewe now stands. The London and North-Western Railway Co. have erected a handsome church, and a large mechanics' institute, containing an assembly-room. Pop. 30,000.

CREWEL, n. *krô′ĕl* [Ger. *knäuel;* Low Ger. *klevel*, a ball of thread]: two-threaded worsted yarn loosely twisted. CREWEL-WORK, fancy needle-work, consisting of fine colored wool and silk threads stitched in designs on a backing of any material.

CREWELS, n. plu. *krô′ĕlz:* see CRUELS.

CREWKERNE, *krū′kėrn:* town in the s.e. of Somersetshire, in the fertile valley of the Parret and Isle, 10 m. s.s. w. of Ilchester, and surrounded by a wide amphitheatre of highly cultivated hills. The chief manufactures are sail-cloth, sacking, hair-seating, webbing, and girths. Its weekly markets, and annual fair, Sep. 4, for sheep, cattle, and horses, are much frequented and well supplied. The word Crewkerne means 'hermitage of the cross.' Pop. 4,000.

CRIB, n. *krĭb* [Dut. *kribbe;* Icel. *krubba;* Ger. *krippe*, a crib, a manger: W. *crib*, a comb; *cribin*, a rake]: the rack or manger out of which cattle feed; any small building; a bed or sleeping-place, chiefly applied to one occupied by a child; often used to signify a book for unfairly assisting schoolboys in the preparation of lessons: V. to shut or confine in a small space; to appropriate small articles secretly; to pilfer. CRIB′BING, imp. CRIBBED, pp. *krĭbd*, shut up; confined. CRIB-STRAP, n. a neck-throttler for crib-biting and wind-sucking horses.

CRIB′BAGE: game with cards, played by two, three, or four persons, the whole pack being used. When three are engaged, each plays for himself; when four, they take sides. The value of the cards is the same as at whist; but there are no trumps. The number of cards dealt is usually five or six, the mode of playing the game varying slightly with the number of cards used. The points are scored on a board with holes for pegs, and 61 constitutes game. The terms used in the game are as follow: *Crib*, the cards laid out by each party, the points made by them being scored by the dealer. *Pairs* are two similar cards, as two aces or two kings; they reckon for two points, whether in hand or playing. *Pairs royal* are three similar cards, and reckon six points. *Double pairs royal* are four similar cards

and reckon twelve points. These various points are thus made: if your adversary plays a seven, and you another, a pair is made, which entitles you to two points; if he then play a third seven, he makes a pair royal, and marks six; and if you play a fourth seven, it constitutes a double pair royal, and entitles you to twelve points. *Fifteens.*—If any combination, whether of two or more cards, in your hand, or in play, make together fifteen, such as a ten and a five, a two, a five, and an eight, etc., you reckon two points. *Sequences* are three, four, or more successive cards, and reckon for an equal number of points; and in playing a sequence, it is of no consequence which card is played first; for instance, if your adversary plays an ace, and you a five, he a three, you a two, and he a four, he scores five for the sequence. *Flush* is when the cards are all of one suit, and reckons for as many points as there are cards. A knave of the same suit as the turn-up card counts for one in any hand. If a knave be turned up, it counts two for the dealer. For full directions for playing the game, see *Chambers's Information for the People*, article 'Indoor Amusements.'

CRIB'BITING: bad habit occurring especially in the lighter breeds of horses, and those spending much leisure in the stable. The act consists in the animal seizing with his teeth the manger, rack, or any other such object and taking in at the same time a deep inspiration, technically called *wind-sucking*. C. springs often from idle play, may be first indulged in during grooming, especially if the operation is conducted in the stall, and the animal be needlessly teased or tickled; is occasionally learned, apparently, by imitation from a neighbor; and in the first instance is frequently a symptom of some form of indigestion. Its indulgence may be suspected where the outer margins of the front teeth are worn and rugged, and will soon be proved by turning the animal loose where he can find suitable objects to lay hold of. It usually interferes with thriving and condition, and leads to attacks of indigestion. It can be prevented only by the use of a muzzle or throat-strap; but in those newly acquired cases that result from gastric derangement, means must further be taken to remove the acidity or other such disorder.

CRIBBLE, n. *krĭb'l* [F. *crible*, a sieve—from L. *crībrum*, a sieve: It. *cribrare*]: a coarse sieve used for corn, sand, or gravel; a coarse flour or meal: V. to cause to pass through a coarse sieve. CRIB'BLING, imp. *-lĭng*, sifting. CRIBBLED, pp. *krĭb'ld*, sifted. CRIBROSE, a. *krĭb'rōz*, or CRIB'RIFORM a. *-rĭ-fawrm* [L. *forma*, shape]: in *bot.*, pierced with little openings like a sieve.

CRIBRATORES, n. plu. *krī-brā-tōr'ēz* [L. *cribro*, to sift; so called from the way in which the birds take their food]: Macgillivray's name for a section of the wading birds. It contains the geese and ducks.

CRICE'TUS: see HAMSTER.

CRICHTON, *krī'tn*, JAMES, surnamed the 'ADMIRABLE:' b. Scotland, 1551 (or 1560). His father, Robert Crichton of Elliock, in the county of Perth, was Lord Advocate

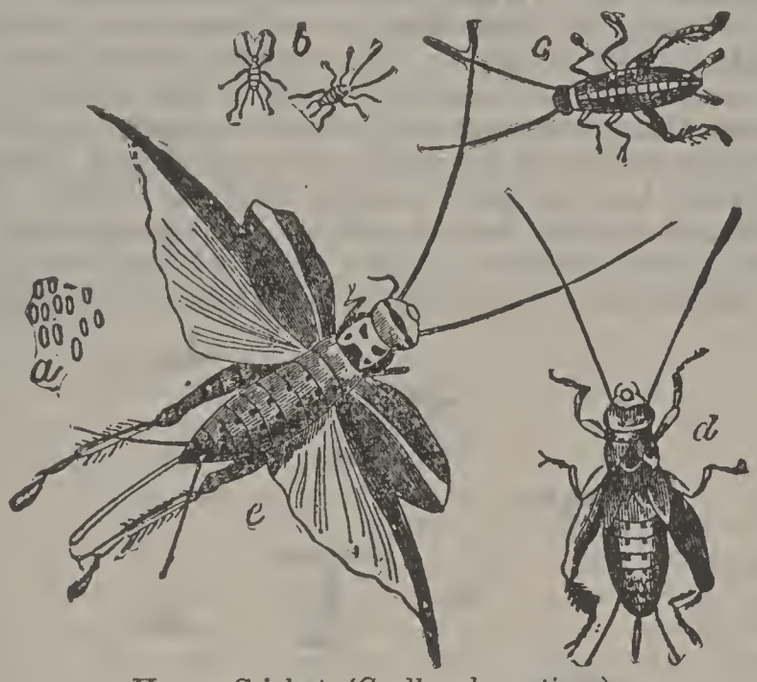
of Scotland, 1561–73. On the mother's side, C. was descended from the old Scottish kings, a descent of which he used to boast on the continent. He was educated at St. Andrews University. Before he reached his 20th year, he had, it seems, 'run through the whole circle of the sciences,' mastered ten different languages, and perfected himself in every knightly accomplishment. Thus panoplied in a suit of intellectual armor, C. rode out into the world of letters, and challenged all and sundry to a learned encounter. If we can believe his biographers, the stripling left every adversary who entered the lists against him *hors de combat*. At Paris, Rome, Venice, Padua, Mantua, he achieved the most extraordinary victories in disputation on all branches of human knowledge, and excited universal amazement and applause. The beauty of his person and the elegance of his manners also made him a great favorite with women; while, as if to leave no excellence unattained, he vanquished, in a duel, the most famous gladiator in Europe. The Duke of Mantua, in whose city this perilous feat was performed, appointed him preceptor to his son, Vincentio di Gonzago, a dissolute and profligate youth. One night, during the carnival, C. was attacked in the streets of Mantua by half-a-dozen people in masks. He pushed them so hard that their leader pulled off his mask, and disclosed the features of the prince. With an excess of loyalty which proved his death, C. threw himself upon his knees, and begged Vincentio's pardon, at the same time presenting him with his sword. The heartless wretch plunged it into the body of his tutor. Thus perished, in the 22d year of his age, the 'Admirable Crichton.'

What measure of truth is in the hyperbolical eulogies of his biographers, it is impossible to determine, as C. left no writings by which they can be judged.

CRICK, n. *krĭk* [from *creak*]: a familiar term for a painful stiffness in neck or back.

CRICKET, n. *krĭk'ĕt* [Dut. *krieken*, to chirp: F. *criquet*, a field-cricket—from OF. *criquer*, to creak, to rattle—an imitative word] (*Gryllus; Acheta* of some naturalists): genus of orthopterous insects, of the section *Saltatoria* (in which the hinder legs are long, very strong, and formed for leaping), allied to locusts and grasshoppers; type of a family *Gryllidæ* or *Achetidæ*). The wings are folded horizontally, and form, when closed, a slender thread-like acumination beyond the wing-covers. It is supposed to be by friction of the wing-covers against each other, and from a peculiarity of their structure, that the males produce the stridulous sound which makes these insects so well known. The antennæ are long and thread-like, inserted between the eyes. The best known species is the House C. (*G. domesticus*), about an inch long, with antennæ of almost an inch and a half, of a pale-yellowish color, mingled with brown. It is widely distributed. Its very frequent abode is in nooks and crevices of houses, and it sometimes burrows in the mortar; the neighborhood of the fire is very attractive to it, particularly in winter; and its merry note has, accordingly, be-

come associated with ideas of domestic comfort and cheerfulness. Without the heat of the fire, it becomes dormant, or nearly so, in winter. It remains quiet during the day, but is lively and active at night, issuing forth to seek its food, which consists both of animal and vegetable substances. Bread crumbs are very acceptable to it; and for the sake, apparently, both of food and warmth, it very



House Cricket (*Gryllus domesticus*):
a, eggs; *b*, young just hatched; *c*, full-grown larva; *d*, pupa; *e*, perfect insect.

much frequents bakehouses. The larvæ are wingless, the pupæ have mere rudimentary wings.—The Field C. (*G. campestris*) is larger, blackish, with the base of the wing-covers yellowish, feeds on herbs and roots, and makes a louder noise than the House C.—A species of C. found in Sicily, makes a noise loud enough to be heard at the distance of a mile.—See Mole C.

CRICKET, n.: A small footstool.

CRICKET, n. *krĭk'ĕt* [F. *criquet*, the stick or peg serving for a mark in the game of bowls: F. *crosse;* OF. *croce*, a crooked staff at cricket, which it was originally, and not a club: Dut. *krick*, a staff or crutch]: favorite outdoor game played with bats, wickets, and ball. Crick'eting, imp.: N. the act of playing at cricket: Crick'eter, n. *-ĕr*, a player at cricket.—Cricket is of very ancient date. The author of the *Cricket Field*—one of the best manuals on the subject—believes to be identical with 'Club-ball,' a game played in the 14th c.; it went originally by the name of 'handyn and handoute.' C. is the truly national English game. There is hardly a town, village, or school, that does not own its C. ground, and military authorities hold it in such estimation as a healthy recreation, that soldiers are encouraged to occupy their leisure time in its pursuit. Of late years, C. has been introduced largely into Scotland

and Ireland, and to some extent into the United States, and various other countries. The requirements for the game are—1st, a piece of level turf an acre or two in extent; 2d, a sufficient number of players to form two sides of eleven each, for *double* wicket, and a lesser number for *single* wicket; 3d, for double wicket (the mode in which the game is usually played), two bats, two sets of wickets and bails, and a ball. When a match is to be played between two 'elevens,' the first thing to be done is to 'pitch' the wickets. *Wickets* consist of six wooden stumps, 27 inches high, and are placed in the ground in sets of three, at a distance of 22 yards apart. On the top of each set of stumps are placed two small pieces of wood, called *bails*. The rival sides next toss for first 'innings,' and the director of the side that is to go in first, places two of his men at the wickets as batters; while a bowler, wicket-keeper, long stop, and fielders (see accompanying illustration), are placed in

Position of Players on Cricket Field for Fast Bowling.

their several positions by the director of the opposite side. When these arrangements are satisfactorily made, and the markers or scorers are at their post the umpires take their places, and the game begins. The relative merits of rival sides are decided by the total number of *runs* made by each eleven batters during two innings—the side whose players score the most being, of course, victorious.

The bowler's object is to direct his ball, by a swift movement of the arm, toward the opposite wickets, at which one of the batsmen stands, and, if possible, to strike down the stumps or knock off the bails; while the object of the batsmen, on the other hand, is to protect his wickets from the bowler's attack, by either stopping the ball when it reaches him (blocking), or driving it out to the field. And much of the beauty of the game depends upon the precision with which the bowler can direct ball after

ball in a straight line for the wickets, and the corresponding skill displayed by a good batsman in guarding them.

We will now suppose the two batsmen to be at their places, the bowler at his, ball in hand, and the other players arranged in theirs; at a signal from the umpire the bowler cries 'Play!' and immediately after, *delivers* his first ball. If the batsman misses the ball, and it passes the wicket, the wicket-keeper stops it, and returns it to the bowler, who delivers another ball, and so on. When the batsman strikes the ball fieldward, he immediately runs to the opposite wicket, passing his companion batsman, who crosses to his, and so on, till the ball has been returned by a fielder to the wicket-keeper or bowler's hand. Thus, if the stroke be a long one, the striker may have time to run perhaps three times between the wickets before the ball is thrown up, when three 'runs' are accordingly placed at his name by the scorers, on their sheet. If, however, the bowler or wicket-keeper receives the ball, and touches the wickets with it, before the advancing batsman has reached his 'ground' or touches it with his bat, the striker is out, and another man takes his place. Besides, if a ball from the stroke of a bat be caught by one of the opposite party before it reaches the ground; or if in striking at a ball the striker hits down his wicket; or if he wilfully prevents a ball being caught, or strikes it twice; or if any part of his person stops a ball which would otherwise have hit his wicket, the striker is out. It frequently happens that two skilful batsmen guard their wickets so effectually, and score so many runs, to one particular style of bowling, that a change either of the bowler, or style of bowling, is adopted by the other side. This change, say from swift to slow bowling, or *vice versâ*, generally produces the required results, and leads to the speedy retirement of the hitherto fortunate batsmen.

The wicket-keeper's place is a very important one, his principal duty being to stop with his hands every ball the batsman misses, it being allowable to make runs (byes) for balls that elude his grasp. Behind him stands the long-stop, who is always on the outlook for balls that escape the wicket-keeper. The fielders, who are posted in various parts of the ground, ought to possess quickness of eye and foot, and skill in picking up with either hand a ball that is running, and instantly throwing it to the wickets. They must also be well skilled in catching balls. Much depends on their judgment of distance between the point at which the ball is picked up, and the wickets, as misconception of this may lead to overthrowing the ball, or throwing it short, while the batsmen are profiting by the error, and scoring additional runs. Fielders usually throw the ball to the wicket-keeper, who returns it slowly to the bowler; this saves the hand of the latter from being unsteadied by catching long balls.

At the end of every four bowls, the bowler, wicket-keeper, long-stop, and fielders, change places, and thus every four balls are delivered from alternate wickets: four

balls constitute an 'over,' which it is the umpire's duty to reckon and announce.

We have said that each side is allowed *two* innings, but it sometimes happens that one side scores more runs in one inning than the other does in two; thus, A's side, we will suppose, goes in first, and its eleven men score 180; B.'s side then goes in, and scores, say, 80 the first innings, and 70 the next; in that case, A would be said to have won by an inning and 30 runs.

In England, Marylebone Club is the parliament of cricket, and its laws are the recognized code for the world. In the United States the game is rapidly spreading. The most comprehensive assoc. is the Inter-city League, regulating annual contests between teams of New York, Boston, Philadelphia, Chicago, Detroit, and Pittsburg. Other authorities are the Metropolitan District League, which regulates matches within 20 m. of the New York city-hall: there are also the Detroit C. Assoc., Pittsburg C. League, California Cricket Assoc., Massachusetts Central C. Assoc., and Western Massachusetts Assoc. Philadelphia, R. I., Del., and Baltimore have local clubs.—Good works on C. are *The Cricket Field, Felix on the Bat*, Lillywhite's *Guide to Cricketers*, Captain Crawley's *Cricket* (1878). See also *Cricket Scores and Biographies*.

CRICKLADE, *krĭk'lād:* agricultural town and parliamentary borough, in the north of Wiltshire, England, 7 m. s e. of Cirencester, on the right bank of the Isis. The town of C. consists of one long street. The government is in a high-bailiff, appointed by the town. It has a considerable retail trade; and the market for fat cattle, held on the third Thursday of each month, is well attended. The parliamentary borough called C. includes, besides its own two parishes of St. Mary and St. Sampson, nearly 50 other parishes, or parts of parishes, comprising a large and rich agricultural district, which returns two members to the house of commons. Pop. of parl. borough (1881) 51,956; of the town, 11,613; (1891) 59,414, and 11,835.

CRICOID, a. *krī'koyd* [Gr. *krikos*, a ring; *eidos*, shape]: like a ring; in *anat.*, applied to the lowest cartilage of the larynx where it joins the windpipe.

CRIED, CRIER, etc.: see under CRY.

CRIEFF, *krēf*—including the burgh of barony of Crieff and the burgh of regality of Drummond: town in Scotland, on the Earn, 17 m. w. of Perth; beautifully situated at the foot of the Grampians, near the entrance to the highlands. It has woolen manufactures, besides tanneries. The climate of C. makes it the resort of invalids in summer, and there is a superior hydropathic establishment, with accommodation for 200 visitors. It is eminent for its schools. St. Margaret's College was opened here 1849, for the education of young ladies of the Episcopal communion. Near is the fine scenery of Glen Almond, with Trinity College, opened 1847, for Scottish Episcopal students. Morrison's Academy—built at a cost of £6,500, and endowed

by Thomas Morrison, builder, Edinburgh, with £20,000—was opened 1860. Crieff is the terminus of two branches of the Caledonian Railway, and since the opening of the first in 1856 it has much improved. The greatest Scotch cattlemarket was here till 1770, when it was removed to Falkirk. Pop. 5,000,

CRILLON, *kre-yōng'*, Louis de Berton des Balbes, surnamed 'Le Brave:' 1541–1615, Dec. 2; b. Murs in Provence. Under Francis of Lorraine, Duke of Guise, then the model of military chivalry, he was trained for war, and at the age of 16, was accounted an accomplished soldier. In 1558, he gave the first public proof of his valor at the siege of Calais. Shortly afterward he covered himself with glory at the capture of Guines. The whole army celbrated the praises of the young hero, who was introduced by Duke Francis in flattering terms to Henry II. As a reward of his numerous heroic deeds, he obtained a multitude of church benefices, which he intrusted to the care of learned clerks. In the religious wars of the 16th c., he fought against the Huguenots, and distinguished himself at the battles of Dreux, Jarnac, and Moncontour. He was present at the battle of Lepanto, 1571, and though wounded, was appointed to carry the news of the victory to the pope and the French king. In the atrocities of the St. Bartholomew Massacre, Crillon had no part. In 1573, he took part in the siege of La Rochelle. In 1585, Henry III. made him knight of his Orders. He continued faithful to his sovereign in his struggle with the Catholic League. Henry IV. found in him a sincere friend and adviser. After the peace with Savoy, Crillon retired to Avignon, and, after the fashion of a true Catholic warrior, ended his days 'in the exercises of piety and penance.' The martial fire burned brightly in Crillon, however, even in his last days; in proof of which, there is recorded the rather melodramatic story, that when listening at church one day to an account of the crucifixion, the old hero forgot himself, and brandishing his sword, cried out: 'Où éstais tu, Crillon?' (Where wert thou, Crillon?)

CRIL'LY, Daniel, Irish journalist: b. 1857, Dec. 14. He edited the *United Irishman*, Liverpool, 1876, and joined the staff of the *Nation*, Dublin, 1880. He represented North Mayo in Parliament 1885–1900, and has published: *In the Byways with Young Ireland* (1888); *The Felon Literature of Ireland* (1889); *The Celt at Westminster* (1892); *Pencillings on Parnassus* (1899); *In the Footsteps of John Mitchell* (1900–1).

CRIME, n. *krīm* [F. *crime*—from L. *crimen*, a crime, a fault: It. *crimine*]: a violation or breaking of some human or divine law; a serious fault; iniquity. Criminal, a. *krĭm'ĭ-năl*, that violates a human or divine law; guilty of or tainted with crime; abandoned; wicked; in *law*, opposed to *civil:* N. a person who has violated human or divine laws; one guilty; in *law*, one convicted of a crime; one indicted for a criminal offense is often called a culprit—in Scotland in some cases 'the panel' (see Panel). Crim-

INALLY, ad. *-lĭ*. CRIM'INAL'ITY, n. *-ĭ-tĭ*, the quality of being guilty of a crime; guiltiness. CRIMELESS, a. *krīm'-lĕs*, innocent. CRIMINATE, v. *krĭm'ĭnāt*, to accuse; to charge with a crime. CRIM'INATING, imp. CRIM'INATED, pp. charged with a crime. CRIM'INA'TION, n. *-nā'shŭn*, the act of accusing; a charging with being guilty of some crime or offense. CRIM'INA'TOR, n. *-ĭ-nā'tėr*, one who. CRIM'INA'TORY, a. *-tėr-ĭ*, that involves accusation; accusing. CAPITAL CRIME, a crime punishable with death. CRIM. CON. n. *krĭm'kŏn* [contr. for *criminal conversation*]: adultery (q.v.). CRIMINOUS, a. *krĭm'ĭ-nŭs* [L. *crimĭnōsus*]: in *OE.*, blameworthy; wicked.—SYN. of 'crime': vice; sin; guilt; offense; misdemeanor; trespass; misdeed; transgression; wrong; wickedness; injustice; injury;—of 'criminal, n.': malefactor; culprit; felon; convict.

CRIME: in its legal, as distinguished from its moral or ethical sense, an act done in violation of those duties for the breach of which the law has provided that the offender shall make satisfaction to the community, that is, pay a penalty to the State, in one form or another. A private wrong, or civil injury, on the other hand, is an infringement on the rights of an individual merely, for which compensation to him is held, in law, to be a complete atonement. From this definition, generally adopted by lawyers, it is obvious that legal criminality is not a permanent characteristic attaching to an action, but one fixed upon it arbitrarily, from considerations of expediency. Without changing its moral character, the same action may, and often is, a crime in one country or in one generation, and no crime in another country or generation. Malice, or evil intention, or disregard of some provision of law, is, however, essential to the character of crime. But it is not necessary, in many instances, that the evil intention shall have had reference to the party injured. If the offender acted in defiance of social duty, and regardless of order, a crime may have been committed, though it may not have been the particular crime which he intended. For example, it is murder if A kill B by mistake for C unless the killing of C would have been justifiable, or excusable. The law can take no cognizance of a bare intention, which has not developed into any sort of act. How far *attempts* to commit crime are punishable, is always a question of difficulty. The general rule seems to be, that if such acts can be unequivocally connected with the criminal intention, they are punishable, though not to the same extent as the completed crime. Pupils under seven years of age, and insane persons, as being incapable of design or intention, are regarded in the eye of the law as incapable of crime; but questions to the responsibility of persons laboring under partial insanity are often surrounded with practical difficulties as yet unsolved. The defense of *compulsion*, or *vis major*, as it is called by lawyers, if completely established in fact, is generally sufficient in law: see COMPULSION. The subjection of a servant to a master, or of a wife or child to a husband or parent, will be no defense for the commission of an act of the criminality of

which the offender was aware, unless it amount to compulsion. Magistrates acting *bonâ fide*, and soldiers acting under their officers in the ordinary line of duty, are not liable to a criminal charge. Extreme want is no excuse for a crime in law, though it may furnish a ground for an application for mercy.

CRIME, Society for the Prevention of: organized in New York 1876, incorporated 1878, for the purpose of promoting the removal of the sources and causes of crime, aiding the unfortunate in obtaining the protection of the courts and the laws, assisting in the enforcement of the municipal and state laws, preventing the sale of liquors on Sunday or by unlicensed dealers, and ridding the city of its low groggeries. It has a large number of agents employed in detecting violations of the excise and other laws governing the sale of intoxicating liquors, and has already done much good by its fearless prosecution of offenders.

CRIMEA, *krĭ-mē'a* (anciently, the Tauric Chersonese) peninsula in the south of Russia, forming the greater part of the govt. of Taurida; lat. 44° 44′–46° 5′ n., long. 32° 30′–36° 35′ east. It is united to the mainland only by the very narrow isthmus of Perekop, between the Black Sea and the Sea of Azof, and separated from the isle or peninsula of Taman, on the e., only by the narrow strait of Yenikalé. The Crimea is thus almost surrounded by water—on three sides by the Black Sea, and on the fourth by the Sea of Azof; while a trench, 70 ft. wide and 25 deep, across the isthmus of Perekop, cuts it off from the mainland. The Crimea is quadrilateral in shape, the four corners pointing to the four cardinal points in the compass; but a long narrow peninsula juts out on the e., which increases the extreme length of the territory from e. to w. to 190 m., the breadth being 110 m.; total area 8,000–9,000 sq. miles. The coast is much broken and indented, particularly on the side of the Sea of Azof. The most easterly part of it is a mountainous peninsula, seat of the ancient kingdom of Bosporus. From the strait of Yenikalé, through this minor peninsula and along the whole s. coast, a chain of mountains extends, which may be regarded as a continuation of one of the chains from Mount Caucasus. This s. district of the Crimea is very rich and beautiful. The mountains rise with steep slopes from the sea, while spurs and secondary chains extend northward, richly wooded, and with most beautiful intermediate valleys, gradually sinking into the uniform and desolate steppe which forms the n. and much greater part of the peninsula. The highest mountain is Tchatirdagh, i.e.,the Tent Mountain, *Mons Trapezus* of the ancients, which rises more than 5,000 ft. It is a table-mountain, and has many great and deep chasms, in some of which the ice remains unmelted all the summer. The s. district of the Crimea is well cultivated, and adorned by many country seats of the Russian emperor and nobles, with parks and gardens surpassed by none in Europe. Tartar villages, mosques, and Greek convents are seen in picturesque situations among the woods

and rocks, with many ruins of ancient fortresses. The vegetation may almost be called sub-tropical; olive groves are frequent; the vineyards yield excellent grapes, and some of them excellent wine; and even oranges are produced. Grain of various kinds is produced abundantly, and silk, wax, and honey. Much attention is bestowed upon horses, oxen, and sheep, in which no small part of the wealth of the country consists. The n. part of the C. is in every way a contrast to the south, being little else than one waste uniform steppe, destitute of water and of wood, with a soil generally very unfit for agriculture, and with numerous salt-lakes and salt-marshes, some of which dry up in summer, and which seem to indicate that it was recently covered by the sea. The air is infected by exhalations from these marshes, and from the *Siwash* or *Putrid Sea*, a portion of the Sea of Azof almost cut off from it by a narrow tongue of land called the Peninsula of Arabat. In the summer and autumn, a most offensive and powerful smell arises from the stagnant water, but the evaporation is often so complete that the Siwash is left dry, and horses can cross upon the hardened ground, where at other seasons vessels may sail. The capital of the C. is Simferopol (q.v.) the old Tatar capital is Baktshiserai (q.v.), both in the interior. Sebastopol (q.v.) is in the s. w.; Kaffa and Kertch in the s. e.; Perekop on the isthmus to which it gives its name, in the north. The C. is now directly connected with the Russian railway system, lines diverging to the s. e. coast and s. w. The small river Alma, on whose banks the first battle was fought between the Russian troops and the French and English invading army (1854, Sep. 20), falls into the Black Sea, where the picturesque s. district approaches the n. steppe.

For the chief features in the early history of the C. see BOSPORUS. The Tatars conquered the territory in the 13th c., and converted it into the khanat of Krim Tatary. The Genoese under these rulers planted flourishing colonies here, which were destroyed by the Turks, who came into possession of the country in the 15th c. Russia finally subjected the C. 1783: see RUSSIA. Pop. of the govt. of C. (1890) 1,096,670, of which two-thirds are Tartars, the remainder Russians, Germans, Greeks etc.

CRIMEAN WAR: 1853-55; between Russia and the allied powers England, France, Sardinia and Turkey; so called because fought chiefly on the peninsula of the Crimea. The motives alleged for the war were the desire of Russia on one hand to protect the Greek Christians in Turkey, and of the allied powers on the other to check the progress of Russia and aid that of Turkey. The Greek (Russian) and Latin (Roman) churches had been striving for exclusive possession of several holy places, including the sepulchre in Turkey, and the French and Russian govts. had been drawn into the controversey, the former espousing the cause of the Latin Church, and the latter that of its national one. Amicable negotiations led to the Greek Church being given jurisdiction over the holy places; but when Russia further demanded the right of protecting the adherents of that

church in Turkey, the sultan refused to yield and appealed to his allies. France and England immediately sent two war vessels each to the Dardanelles; the Russians entered the Turkish principality of Moldavia 1853, July; and the sultan declared war in Oct. In 1854, Jan., the French and English fleets entered the Black Sea, and their govts. notified Russia that they should maintain command of that water, and, having signed a treaty of alliance with Turkey, both made a formal declaration of war against Russia, Mar. 27, 28. The first action of note was the bombardment of Odessa by the combined fleet, Apr. 22. In the following month the allied army landed at Varna, moved to the Crimea, Sept., and defeated the Russians at Alma river on the 20th. The British troops were under command of Lord Raglan, the French of Marshall Saint-Armand, and the Russian of Prince Mentchikof. The first battle caused a loss to the Russians in killed and wounded of 5,000, and to the allies of 3,400. Five days afterward the British forces seized Balaklava, and the memorable siege of Sebastopol began Oct. 9. The Russians attacked Balaklava, Oct. 25th, when the celebrated charge of the British light brigade was made, and Inkerman, Nov. 5, when they were defeated with heavy loss. Sardinia joined the allies 1855, Jan.; Gen Pélissier took command of the French army, May; the allies made a desperate but unsuccessful attack upon the Malikoff and Redan fortresses, June 18; the French carried the Malikoff by storm, Sept. 8; and the Russians sank their fleet and retreated from Sebastopol on the following day. Peace was concluded by treaty, 1856, Mar. 30, and the allies evacuated the Crimea, July 9. The casualties of the war were estimated as follows: British, killed, died of wounds, died of cholera, died from other diseases, and disabled, 26,873; French, from same causes, 63,500; Russian, from all causes, over 90,000. Consult Kinglake, *The Invasion of the Crimea* (1863–87). and Hamley, *The War in the Crimea* (1891).

CRI'MEN REPETUNDA'RUM: crime of accepting a bribe by a judge: see BARATRY: JUDGE.

CRIM'INAL COURTS: see COMMON LAW, COURTS OF ASSIZE: JURY-TRIAL: ETC.: see also JUSTICIARY: JUDICIARY IN THE UNITED STATES.

CRIM'INAL INFORMATION: see INFORMATION.

CRIM'INAL LAW: see CRIME: PROSECUTION: PROSECUTOR.

CRIMINAL PSYCHOLOGY. The consideration of the criminal as mentally abnormal has given rise to a distinctive phase of psychological study. In contrast with the older attitudes (which have strongly influenced legal status and judicial and punitory treatment) the more scientific study of the criminal classes looks upon the criminal tendency as allied to abnormal tendencies in other directions, many of them without the violation of decorum, law, or social regulation which makes criminal offenses conspicuous. The most common

instance of the distinction is that between thievery pursued as a means to avoid honest labor, and the irresistible impulse of kleptomania. Criminal psychology makes close alliance with the anthropological study of the criminal, which in turn sets forth that when studied in large and uniform groups, criminals are found to possess bodily abnormalities in larger proportion than more normal groups. Tendencies to alcoholism, to perverse sexual and coarse practices, to shiftlessness and vagrancy, and again to actual diocy and insanity are frequently found in the hereditary and collateral family history of the 'born' criminal. Such a conception of the criminal must be cautiously applied; and many writers distinguish sharply between the instinctive criminal, the professional criminal, the occasional or accidental criminal, and other types. More detailed investigations have indicated—again statistically and not individually—the connection of outbreaks of crime with hot weather, with periodic mental or physical strain, with the critical changes of life (adolescence, menopause) and the like. Thus while the conceptions and the results of 'criminal psychology' are as yet beset with much vagueness and uncertainty, the establishment of the psychological position is important. This holds that a criminal offense is not merely an objective infringement against a statute but suggests a study of the personality of the criminal and the circumstances of the crime, and proposes this in a clinical sense, and with a like practical design to shape the methods of cure and prevention.

CRIMINOLOGY, the science dealing with crime and the criminal population. Criminology may be divided into three branches: general, special, and practical. General criminology consists in a summary and classification of results already known and is historical in character. Special criminology is confined to the study of individual criminals, employing the methods of science with instruments of precision. Practical criminology treats of methods and institutions for the prevention or amelioration of crime, including a study of prisons, reformatories, police systems, and criminal law as applied to society. It is in special criminology that most interest of late has been shown; this branch is pervaded with the scientific spirit.

CRIMOSIN, n. *krĭm'ō-zĭn*, OE. for Crimson.

CRIMP, v. *krĭmp* [Dan. *krympe*, to shrink: Dut. *krimpen*, to contract: W. *crimpio*, to pinch, or crimp—connected with *cramp*, *crump*, and *crimple*, all used in the sense of contraction]: to pinch up in small ridges, as a frill or ruffle; to induce rigid muscular contraction in a fish by making cuts through the flesh: Adj. brittle; easily crumbled. Crimp'ing, imp.: N. the operation of inducing rigid muscular contraction in fish by transverse cuts and immersion in cold water; the act of forming into ridges or plaits. Crimped, pp. *krĭmpt:* Adj. applied to cod and other fish prepared for table by the operation of crimping.

CRIMPING-IRON, an iron for curling hair and crimping frills. CRIMPLE, v. *krĭm′pl*, to contract or draw together; to cause to curl. CRIM′PLING, imp. CRIMPLED, pp. *krĭm′pld*, contracted; shrunk.

CRIMP, n. *krĭmp* [Dut. *krĭmpe*, a confined place in which fish are kept alive till wanted]: an agent who unfairly decoys men into naval or military service—especially one who entraps sailors; one who ostensibly keeps a lodging-house for sailors, but whose real occupation is to fleece the unwary of their wages; a game at cards so called: V. to decoy into naval or military service. CRIMP′ING, imp.: CRIMPED, pp. *krĭmpt*.—Crimps often receive so much per head for seamen whom they decoy into service on ships. They are numerous in large seaports, and are usually in league with keepers of low lodging-houses and taverns, and with prostitutes, to deprive seamen of their wages. They also keep a sharp look-out for emigrants, and convey all who are simple enough to put faith in their statements to low houses in which they have an interest. The mere charge for lodging is often small, but the lodgers are cheated by provision merchants and others who pay the C. a liberal commission on their custom. In recent years much has been done to protect seamen from these abuses. There are also reputable agents through whom ships engage sailors; these are never known as crimps.

CRIMSON, n. *krĭm′zn* [F. *cramoisi;* OF. *cramoisin;* Turk. *kirmizi*, crimson: Sp. *carmesi*—from *kermes*, the name of the insect producing the color]: a deep-red color; a red color in general; a red inclining to purple: see RED COLORS: ADJ. having the color of crimson: V. to dye with crimson: to be tinged with red; to blush. CRIM′SONING, imp. CRIM′SONED, pp. *-znd*, tinged with a red color. CRIMSON-HUED, *-hūd*, of a crimson color.

CRINAN CANAL, *krē′nan:* artificial water-communication 9 m. long, in the w. of Argyllshire, Scotland, between Loch Gilp, a branch of Loch Fyne, and Loch Crinan, in the Sound of Jura, at the head of the peninsula of Cantire. It was constructed in the end of last c., to avoid the circuitous passage of 70 m. round the Mull of Cantire, on the route from Glasgow to Inverness by the Caledonian Canal. It is 24 ft. broad, and 12 deep, has 15 locks, and admits vessels of 200 tons.

CRINED, *krīnd* [Lat. *crinis*, the hair], in Heraldry: denoting that the hair of a man or woman, or the mane of a horse, differs in tincture from the rest of the charge—said to be *crined*, of such a metal or color.

CRINGE, v. *krĭnj* [AS. *crymbig*, crooked; *cringan*, to sink in battle, to succumb: Dan. *krybe*, to creep, to grovel: Ger. *kriechen*, to creep, to sneak]: to fawn upon with servility; to flatter meanly; in *OE.*, to contract, twist, or draw together, as the body and muscles of the face in pain: N. servile civility. CRING′ING, imp.: ADJ. having the habit of one who cringes. CRINGED, pp. *krĭnjd*. CRINGER, n. *krĭn′jĕr*, ne who. CRINGELING, n. *krĭnj′lĭng*, one who stoops meanly to obtain favor.

CRINGLE, n. *krĭng'gl* [Icel. *kringla*, a round cake: Dan. *kring*, a circle]: a withe for fastening a gate; a short peace of rope with each end spliced into the bolt-rope of a nail confining an iron ring or thimble: through these spliced ropes smaller ropes are passed to aid in managing the sails.

CRINIGER, n. *krĭ'nĭ-jėr* [L., hair-bearing, hairy]: genus of thrushes, family *Merulidæ*, comprehending those species which have strong setæ on the bill, and whose feathers on the back of the neck have sometimes a setaceous termination.

CRINITE, a. *krī'nīt* [L. *crinītus*, having long hair—from *crinis*, hair]: in *bot.*, having the appearance of a tuft of hair; bearded.

CRINKLE, v. *krĭng'kl* [Dut. *kronkelen*, to curl, to twist: Dan. *kringel*, crooked]: to form with short turns or wrinkles; to leave small folds or wrinkles, as the skin by the shrinking of the flesh in old age; to run in and out in little short bends. CRIN'KLING, imp. *-klĭng*. CRINKLED, pp. *krĭng'kld*.

CRINO, n. *krī'nō*, CRINONES, n. plu. *krī-nō'nēz* [L. *crinis*, the hair]: disease characterized by the growth of rigid black hairs from the skin of the back, arms, and legs, attended by febrile symptoms and emaciation. It affects infants.

CRINOIDS, n. plu. *krī'noyds*, or CRINOI'DEÆ, *-noy'dē-ŭ* [Gr. *krinon*, a lily; *eidos*, shape]: order of family of radiate animals of the class *Echinodermata* (q.v.), of which the

Encrinus.

recent species are few, but the fossil species so very numerous as to constitute great tracts of the dry land as it now appears. The C. have a central disk, in which is contained the digestive cavity, with two orifices, and from which arise arms

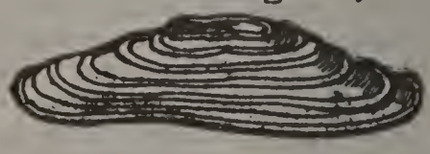
or rays, five in number, but soon subdividing, so as at first sight to appear more numerous, and again subdividing into lateral appendages, either fin-like or filamentous, the disk as well as the rays and their subdivisions formed of a calcareous jointed skeleton, clothed with a fleshy integument, of which the fin-like expansions are formed, and which is thicker than in star-fishes, and contains imbedded in it the innumerable ovaries. The joints are also extremely numerous, and the subdivision of the rays often very great. The disk is composed of calcareous pieces and fleshy integument like the rays, as is also a stalk on which the whole is usually supported; the base, it is supposed, being fixed and the disc and rays expanding like a flower. It appears probable that many of the fossil C. were permanently fixed in this manner, and this is supposed to be the case with the species of *Pentacrinus* still existing, as the *P. caput Medusæ*, or Medusa's Head of the W. Indian seas; but others are fixed only when young, the disc and arms finally becoming detached from the stalk and moving freely in the sea, swimming in a manner analogous to that of the medusæ. This interesting fact was first discovered by Wyville Thompson, who found in the sea near Cork the stalked young of the *Comatula rosacea*, a small but very beautiful species, and the only species of the C. found in the British seas. The fossil remains of Crinoids are called encrinites (stone-lilies): see ENCRINITES. CRINOI'DAL, a. *-dăl*, pertaining to.

CRINOLINE, n. *krĭn'ō-lēn* [F. *crinoline*, hair-cloth—from L. *crinis*; F. *crin*, hair; *lĭn*, flax—from L. *līnum*, flax], woman's petticoat stiffened with cane, steel, or horse-

Ladies in time of Queen Elizabeth, showing how the Fardingale was worn.

hair bands; the bands that stiffen petticoats. This fashion of expansion of skirts is not new. The first name we find given to it is the *fardingale*, introduced by Queen Elizabeth. Walpole, in his fancy description of her, speaks of her 'enormous ruff and vaster fardingale.' The upper part of the body was incased in a cuirass of whalebone, which was united at the waist with the equally stiff fardingale of the

same material, descending to the feet, without a single fold, in the form of a great bell. Gosson mentions the fardingale in 1596, in his *Pleasant Quippes for Upstart Newfangled Gentlewomen*. In the end of the reign of James I., this fashion gradually declined, and was further tamed down by Puritan feeling in the time of Charles I. and Cromwell, till it quite disappeared. We next hear of it in 1711 as 'that startling novelty the hoop petticoat,' which differed from the fardingale in being gathered at the waist. Sir Roger de Coverley is made to say of his family pictures: 'You see, sir, my great-great-grandmother has on the new-fashioned petticoat, except that the modern is gathered at the waist; my grandmother appears as if she stood in a large drum, whereas the ladies now walk as if they were in a go-cart.' Hogarth, in his night-scene in *Marriage à-la-Mode*, introduces on the floor a hoop of the time of George II.; and about 1744 hoops are mentioned as so extravagant, that a woman occupied the space of six men. An elongated oval form also came into fashion, raised at each side to show the high-heeled shoes, causing caricaturists to say that a lady looked like a donkey carrying its panniers. These hoops were of whalebone, with canvas over them, having capacious receptacles on each side for articles of convenience. In 1778, we find hoops of canes used, being advertised to 'out-wear the best sort of whalebone.' About the year 1796, hoops had been discarded in private life, but were still the mode at court, and never had been seen in more full-blown enormity, continuiug so to the time of George IV., when they were abolished by royal command.



The development of this fashion about the middle of the present century began with C. in its original and proper sense, first in the form of an inelegant 'bustle,' in the upper part of the skirt, then the whole petticoat. Instead of the hair fabric, some used, for economy, cotton, thickly corded and starched. At length, about 1856, people were startled by the fact that the fashion of Queen Anne's time was returning, only that the structure was lighter and more pliant; being usually composed of a series of horizontal small steel hoops, held together either by vertical bands, or by being sewed into a kind of petticoat. Unlike former times of hoops and fardingales, the fashion descended to maid-servants, so that where the dining-room was small, table-maids have been known to give warning of intention to quit, because they could not clear the space between the table and the fire; and the newspapers were occasionally announcing 'Accident from Crinoline,' or 'Lady Burned to Death from Crinoline.' The *Spectator* dealt out much cutting, though playful, raillery on the hoops of his day, but apparently with little effect; and equally unavailing were the satires of *Punch* and other caricaturists of the 19th c. against the hideous fashion of crinoline. The hoops were sometimes made with a circumference of four, and even five yards. At last, abt. 1869, after indignation and ridicule had for years assailed

the monstrosity in vain, the inflation began without apparent cause, to collapse; and rushing to the opposite extreme, ladies might be seen walking about as slim as if merely wrapt in a morning-gown or bathing-dress. The *crinolette* is a small crinoline causing the dress to project behind only, and is more recent. The pannier, with a somewhat similar effect, is a structure of lappets of cloth.

CRINUM, *krī'nŭm:* genus of bulbous-rooted plants of the nat. ord. *Amaryllideæ*, having long tubular flowers, the segments of the perianth hooked at the apex, the stamens straight and inserted into the tube, and a three-celled capsule. It contains a considerable number of species, natives of different tropical and sub-tropical countries, generally with umbels of large and beautiful flowers.

CRIPPLE CREEK: city in Teller co., Col.; on the Florence and Cripple Creek and the Midland Terminal railroads; 50 m. w. of Colorado Springs. It is the trade centre for a large gold mining district and has several cyanide mills, smelters, and other mining industries, and also contains several churches, banks, public, high, and parochial schools, and daily and weekly newspapers. The town was founded in 1891 as a mining camp, became a town in 1892, and a city in 1898. In 1896 the town was nearly destroyed by fire. The government is vested in a mayor and council of eight members, elected annually. Pop. (1900) 10,147; (1910) 6,206.

CRIPPLE, n. *krĭp'l* [Icel. *kryppa*, a hump; *kryppill*, a cripple: Dut. *krepel*, a cripple: Dan. *krybe*, to creep (see CREEP)]: one who has lost the use of a limb or limbs, or is partly disabled; a lame person: V. to deprive of the use of a limb or limbs; to lame; to disable. CRIP'PLING, imp. CRIPPLED, pp. *krĭp'ld*, disabled.

CRISIS, n. *krī'sĭs*, CRISES, n. plu. *-sēz* [L. *crisis;* Gr. *krisis*, a decision: It. and F. *crise*]: the decisive point in any important affair. CRISIS, in Medicine: rapid or sudden determination of an acute disease in the direction of convalescence or of death; opposed in signification to lysis (*luo*, I relax), which denotes the gradual subsidence of the symptoms noticed in most chronic, and in some acute diseases. The doctrine of crisis, which was very important in the view of the ancient physicians, was closely bound up with that of a *materies morbi*, or material of disease in the blood, which was presumed to be undergoing changes, during the whole course of the malady, tending to an evacuation of some kind from the system in the form of a critical discharge (*apostasis* or *abscess*), which, when observed, was supposed to contain the matter of disease in a state of *coction*, and to be the direct cause of the sudden relief of the patient. Thus, according to the character and seat of the critical discharge, it was common to speak of a C. by sweating, by diarrhœa, by expectoration, by urine, by parotid swellings, etc.; and no C. was considered regular that was not attended by some symptom of this kind. Another curious doctrine associated with that of crises,

was the belief in certain days as ruling the beneficent or injurious, the complete or incomplete, character of a crisis. The seventh, fourteenth, and twentieth (according to some the twenty-first) days of the disease were regarded as eminently critical; less so, but still favorably critical, were the third, fifth, eleventh, and seventeenth; the fourth day was the *indicator* of a complete crisis on the seventh; the sixth day was the *tyrant*, notorious for unfavorable crises; the second, eighth, tenth, thirteenth, and the rest were non-critical. Few physicians now attach great importance to critical days, except in a special class of diseases which evince an element of periodicity; but the doctrine of crises and of a *materies morbi*, is still taught with scientific modifications and qualifications in medical schools and text-books.—SYN.: conjuncture; emergency; exigency; turning-point.

CRISOME, n. *krĭs′ŭm* [OF. *cresmeau*, the crisome, see under CHRISM]: in *OE.*, the little cloth or christening cap put upon the head of a child as soon as it was anointed; the white robe put on a child at baptism; a child dying soon after baptism.

CRISP, a. *krĭsp* [F. *crisper*, to shrivel: OF. *crespe*, curled—from L. *crispārĕ*, to curl; *crispus*, curled: It. *crespo*]: curled; formed into ringlets or curls; in *OE.*, curled or winding; brittle; easily broken short; in *bot.*, having an undulated or curling margin: V. to wrinkle; to curl. CRISP′ING, imp. CRISPED, pp. *krĭspt*. CRISP′LY, ad. *-lĭ*. CRISP′NESS, n. brittleness. CRISPY, a. *krĭs′pĭ*, curled; brittle. CRISPATE, a. *krĭs′pāt*, having a crisp appearance; rough with waving lines. CRISPATION, n. *krĭs-pā′shŭn* [F.—L.]: the act of curling or state of being curled.

CRISP, *krĭsp*, CHARLES FREDERICK: jurist: 1845, Jan. 29—1896, Oct. 23; b. Sheffield, Eng. His parents, who were visiting England at the time of his birth, returned with him to the United States the year of his birth. He received a common school education in Savannah and Macon, Ga.; served in the Confederate army till 1864, May 12, when he became prisoner of war and was confined in Fort Delaware; was admitted to the bar in Americus, Ga., 1866; became solicitor-gen. of the s.w. judicial circuit of Ga. 1872; was reappointed for four years 1873; appointed judge of the state supreme court 1877, and elected by the legislature to the same office 1878; re-elected judge for four years 1880; resigned and was elected to congress 1882; re-elected 1884, 86, 88, and 90; elected speaker of the house of representatives 1891, Dec.; and re-elected speaker 1893.

CRISPI, *krēs′pē*, FRANCESCO: statesman: 1819, Oct. 4—1901, Aug. 11; b. in Sicily. He was admitted to the bar of Naples, took part in the revolution 1848, became sec. of war, and directed resistance 2 years. After the failure of the revolution, he fled to France, then to Piedmont, Malta, and London. In 1859 he went back to Sicily to prepare the way for the new revolution. He landed at Palermo with Garibaldi and his 'Thousand,' and fought

as a private soldier; he was made col. at Talamone. In Naples he was minister for foreign affairs, and paved the way for annexation of the Two Sicilies to Italy. Elected to the first Italian parliament 1861, he soon became the acknowledged leader of the constitutional opposition party. It was the understanding between Crispi and the old Piedmontese 'third party' that led to the formation of the Ratazzi ministry 1876; Crispi became pres. of the chamber by a vote of 232 against 115. After the fall of Nicotera's ministry, 1877, Dec. 25, Crispi was chosen by Depretis to be minister of the interior, but was compelled by public opinion to resign, under a charge of bigamy. He was one of the 86 deputies who, 1883, formulated the programme of compensation for deputies, revision of the papal guarantees, and friendly alliance with Austria and Germany. He became minister of the interior in the Depretis cabinet 1887, and on the death of Depretis, in the same year, succeeded him as prime minister and minister of foreign affairs Aug. 7. In Oct., Crispi went to Friedrichsruhe, to arrange the details of the triple alliance between Italy, Germany and Austria. He again visited Prince Bismarck on the same mission 1888, Aug. 22. Failing, 1889, to reach an understanding with the pope with regard to the reform of the benevolent institutions, Crispi had a bill introduced into the parliament, which became law, depriving the ecclesiastical authorities of the direction and administration of charitable foundations. An adverse vote of parliament forced his resignation 1891, Jan. 28, but he was again restored to power 1893, Dec. 15, and in the general elections 1895, May 26, secured a great parliamentary majority; retired 1896.

CRISPIN, n. *krĭs'pĭn* [comp. L. *crĕpĭda;* Gr. *krēpis*, the sole, a sandal, a shoe]: a shoemaker, after St. *Crispin*, the patron saint of shoemakers.

CRIS'PIN, Saint: Christian martyr in the 3d c.; descended from a noble Roman family. About the middle of the 3d c., under the reign of Diocletian, he, with his brother Crispianus, fled from Rome into Gaul, where he worked as a shoemaker in the town now called Soissons, and distinguished himself by exertions for the spread of Christianity, as well as by work of charity. According to the legend, his benevolence was so great that he even stole leather to make shoes for the poor. From this, charities done at the expense of others have been called Crispinades. In 287, he and his brother suffered a most cruel martyrdom. Both brothers are commemorated on Oct. 25. King Crispin, as he is called, is the universally recognized patron saint of shoemakers, and is represented with dramatic effect in the ceremonial processions of the 'gentle craft.' There is an amusing but scarce book about shoemakers entitled *Crispin Anecdotes.*—Knights of St. Crispin, society of shoemakers for promotion of workingmen against employers, by regulating wages and by providing for the unemployed and the sick. It was organized in Wisconsin 1866, and has spread into several states.

CRISS-CROSS, a. in opposite directions; opposed; contrary.

CRISTATE, a. *krĭs'tāt* [L. *crista*, a crest]: in *bot.*, crested; tufted. CRIS'TA, n. *-tă*, in *anat.*, a term applied to several processes or ridges of bones.

CRISTATELLIDÆ, n. plu. *krĭs-ta-tĕl'lĭ-dæ* [mod. L. *cristatella* (q.v.), and fem. pl. adj. suf. *-idæ*]: family of polyzoa or bryozoa, founded by Prof. Allman; order *Phylactolæmata*. It has a free and locomotive polyzoary. The species are found in fresh water. CRISTATEL'LA, typical genus of the family *Cristatellidæ*.

CRISTELLARIDEA, n. plu. *krĭs-tĕllăr'ĭd'ē-a* [mod. L. *cristellar* (*ia*), and suf. *-idea*]: according to Ruess, a family of foraminifers, one of those with a perforate test, and that division of them in which that test is calcareous, glassy, and finely porous. CRISTELLAR'IA, a. *-ĭ-a*, typical genus of the *Cristellaridea*.

CRITERION, n. *krī-tē'ri-on*, pl. criteria (*-ä*), obs. form criterium; [F. *criterium*, It. Sp. Pg. *criterio*, NL. *criterion*, *criterium*, from Gr. κριτήριον, a test, κριτής a judge-κρίνειν, judge]: a standard of judgment or criticism; a rule or principle for testing or valuing any class of objects of thought, as, *truth* and *error* in matters of fact, opinion and theory, *goodness* and *badness* in matters of conduct and practice, *beauty* and *ugliness* in matters of taste. Various *criteria of truth* have been offered. Two kinds of criterion have been distinguished, *formal* or universal criterion, and *material* criterion, dependent upon the particular subject matter or contents of knowledge under consideration. It must be obvious, however, on careful consideration, that this distinction is not a workable one. If there be any universal criterion, these must be equally applicable in any field. On the other hand, no universal principles will enable one, without fuller experience and practice, to distinguish, e. g., between the proper methods of introspective analysis and verification in psychology and of observational analysis in botany or geology. The trained observer in every field must develop a sense or *tact* for investigation in that field. The *formal* criteria advanced have been: 1. Correspondence of ideas with external reality or fact (the common-sense view, largely represented in English empirical philosophy); 2. Clearness and distinctness of ideas (Descartes, q.v.); 3. Self-consistency or non-contradiction in a systematic whole. The correspondence or 'copy' theory, if pushed to its logical issue, implies that there is a gap or chasm between the mind, as container of ideas, and the world. The mind is a more or less accurate *mirror* of fact. This theory is untrue to the actual growth of knowledge (see KNOWLEDGE). If one begins by assuming that cognitive processes are simply ideas shut up in somebody's head there is no logical way of getting out to a world of fact and truth (see SCEPTICISM). Truth presupposes an immediate and positive relation between knowing mind and world as known. 2.

Clearness is undoubtedly of value as a criterion, but it is insufficient. Hallucinations may be very clearly defined. 3. If, from the beginning of knowledge, the mind be in immediate intercourse or relation with a real world, then the final criterion of truth is simply *maximum self-consistency* or the *progressively systematized or organized character* of various elements and phases of knowledge. And both practical workableness and logical consistency are aspects of this criterion. For, on the one hand, if an idea have good practical results it must be in harmony with the constitution of things; and, on the other hand, there must be rational self-consistency or systematic organization in a world in which the ideas of a thinking mind work. Pragmatism (q.v.) seems to stress the former consideration but to forget the latter.

CRITH, *krĭth:* the weight of a litre of hydrogen. By the atomic law an equal volume of all gases contains the same number of molecules. Hence if we know the weight of a unit volume of any gas we can determine that of another by multiplying the known weight by the factor expressing the ratio of the molecular weights. As hydrogen is the lightest of gases, the weight of a litre at 0°C. and .760 mm. Bar. (0.0896 gram), has been selected as a convenient hasis and is called the crith. And the relative volume-weight of chlorine being 35.4, of oxygen 16, nitrogen 14, the actual weights of 1 litre each of these at 0° C. (32° F.) and at 0.75 mm. pressure, may be called respectively 35.4 criths, 16 criths, and 14 criths.

CRITIAS, *krĭt'ĭ-as,* Greek orator: d. 404 B.C. He was one of the 30 tyrants set over Athens by the Spartans. He applied himself with great success to the culture of eloquence, which he had studied under Gorgias, and Cicero cites him among the public speakers of that day. Banished from Athens for some cause that is not known, he retired to Thessaly. Returning to Athens with Lysander, 404 B.C., he was appointed one of the famous 30.

CRITIC, n. *krĭt'ĭk* [L. *critĭcus,* a critic: Gr. *kritĭkos,* able to discern: It. *critico:* F. *critique,* critical—from Gr. *krino,* I judge]: a person skilled in judging of the merits of works in the fine arts, or of the beauties and defects in literature; a fault-finder. CRIT'ICAL, a. *-ĭ-kăl,* highly important; momentous (sense from *crisis*); nicely exact; prone to judge severely the productions of others; fault-finding. CRIT'ICALLY, ad, *-lĭ.* CRIT'ICALNESS, n. CRIT'ICISE, v. *-sīz,* to examine and judge, with attention to beauties and faults; to find fault with; to censure or blame. CRIT'ICI'SING, imp. CRIT'ICISED, pp. *-sīzd.* CRIT'ICI'SABLE, a. *-ză-bl,* capable of being criticised. CRIT'ICISM,, n. *-sĭzm,* the art of judging of the beauties or faults in literature or the fine arts; critical remarks, verbal or written. Literary and artistic criticism—the higher department of what is sometimes called 'reviewing'—has engaged some of the most distinguished minds in Germany, France, England, and, in recent years, in the United States. The writers in

this department are now very numerous, and much of their work is of high rank. *Criticism* is applied also to a close, deep, and thorough study and analysis, sometimes with a decidedly speculative element, of ancient writings, for the deciding of questions regarding authorship, date, etc. CRITIQUE, n. *krĭ-tēk'* [F.]: a critical examination in writing of any work; a criticism.

CRITICAL TEMPERATURE: one of the constants of physical science; the temperature above which a gas cannot be reduced to the liquid or solid state by forces of pressure alone. This temperature varies, each gas possessing its own. Ordinarily there is a sharp line of division visible between a liquid and its vapor when in the same vessel. Thus a sealed tube may contain liquid and gaseous carbon dioxide, and under ordinary conditions the line of division will be as sharply marked as that between water and air. But at the critical temperature, if the pressure is gradually increased, the free surface of the liquid becomes blurred and merges into the gas above, thus indicating a continuity of the gaseous and liquid states; the substance is then said to be in the *critical state.* Of course for every critical temperature there is a correlative *critical pressure.* The latter constant is not so often used. For carbon dioxide the critical temperature is 30.92° C. (87.65 F.); for water, 720.6 C. (1329.08 F.); for oxygen, 113° C. (—171.4° F.).

CRITICISM, HIGHER BIBLICAL: see HIGHER CRITICISM, THE.

CRITICISM, in Philosophy: the name given since Kant (q.v.) to every philosophical theory that makes the solution of the problem of the *nature of knowledge* the basis of all further philosophical doctrine. The argument of criticism may be paraphrased thus. The only means by which we can either know the world and its events, or even think thereabout, are our mental faculties; for evidently we cannot come into closer cognitive contact with the world's facts than through our organs of sense, and our memory and other mental processes. From this it in turn follows, that the world revealed to us, the only world with which we are in any way concerned, has gone as it were through the mill of the mind and may have been made, or at least transformed, by the mind. In short, instead of the mind being a mere onlooker in our world, it may be practically a creator. Both doctrines indicated have been held since Kant's time. According to the one the world revealed to our minds is *only in part* their creature. Hence we have two worlds; first, the world as it is in itself, independent of our minds, secondly, the world as it is revealed to us and known by us. The former world is from the nature of the case unknowable (see AGNOSTICISM). The latter is the phenomenal world, the world of daily life. According to the other doctrine there is but the one world, the world whose author is the mind. Hence Knowledge and Reality, two words that

are ordinarily believed to be of different meaning, are synonymous.

The problem of the Kantian criticism, however, has to be stated in a less general way. How do we know *more* about the facts of the world, and this *infallibly*, than could possibly have been revealed to us by the usual sense, given information; e.g., that every effect the universe through has its cause, that all events must be in time, or in time and space? Kant calls such a piece of information an *a priori* synthetic judgment [that is, a judgment that adds new information (synthetic) and that is infallible (*a priori*)]. His answer is likened by him to the discovery by Copernicus; for just as the problems of astronomy were unsolved as long as men believed that the earth was the centre of the universe and that the heavenly bodies revolved about it, so also has the possibility of *a priori* synthetic judgments been an insoluble problem as long as we assume that 'our knowledge must conform to the objects' instead of assuming 'that the objects must conform to our mode of cognition.' If the latter is true, our infallible knowledge about things is simply 'what we ourselves have put into them.' Thus, according to Kant, all that we can call order in the world, all that makes it a cosmos, is of the mind's own doing; that is, if we could remove from the world as revealed to us, the mind's contribution, it would be simply a chaos of sense elements, e.g., colors, sound, feelings of hard, soft, cold, warm, etc. Moreover, it would not even be a world in space and time, for they too are the mind's 'form of intuition.'

CRITTENDEN, *krĭt'en-dĕn*, JOHN JORDON: 1787, Sep. 10—1863, July 26; b. Woodford Co., Ky.: statesman. He graduated at William and Mary College 1807, studied law, and began practising in his native co., but removed shortly to Logan co. on the Tenn. border. In 1809 he was appointed atty. gen. of the territory of Ill.; 1812–13 served in the army; 1816 was elected to the legislature; 1817 became U. S. senator; and 1819 resigned, removed to Frankfort, and applied himself to his practice. Pres. Adams appointed him U. S. dist. atty. 1827, and Pres. Jackson removed him 1829. In 1835 he was again elected U. S. senator as a Whig, and was re-elected on the expiration of the term, but resigned the seat to enter Pres. Harrison's cabinet as atty.-gen. 1841. Soon after the accession of Pres. Tyler, a difference arose between him and Mr. Crittenden on the national policy, and the latter retired from the cabinet. On the resignation of his seat in the senate by Henry Clay 1842, Mr. Crittenden was appointed to fill the vacancy, was elected for the next full term 1843, and while so serving was chosen gov. of Ky. 1848. Two years later he entered the cabinet of Pres. Fillmore as atty.-gen., decided the fugitive-slave law to be constitutional, and served till 1853, March. In 1855 he was elected U. S. senator for the sixth time; opposed the repeal of the Missouri Compromise, the policies of Presidents Pierce and Buchanan, and secession; and, failing

to effect a reconciliation between the north and south through resolutions known as the Crittenden compromise (q.v.) gave a hearty support to Pres. Lincoln and the Union cause.

CRITTENDEN, Thomas Theodore, American lawyer: b. Shelby County, Ky., 1832, Jan 2; d. East Gloucester, Mass., 1905, Sept. 5. He was graduated at Centre College, Danville, Ky., in 1855; served through the Civil War as lieutenant-colonel of the 7th Missouri cavalry; practised law after the close of the War; and filled an unexpired term as attorney-general of Missouri. He was a member of Congress 1877–81; governor of Missouri in 1881–5; United States consul-general at the city of Mexico 1893–7; and afterwards practised law.

CRITTENDEN COMPROMISE, 1860–1: the last desperate effort of the Southern Union party to avert secession and war, by permanently crystallizing the free and slave communities as they stood; dividing the boundaries on the line of the Missouri Compromise, and engaging the Federal power to uphold slavery to the full, where it existed. In the session of Congress after Lincoln's election, the Constitutional Union party having broken down, John J. Crittenden (q.v.) of Kentucky, a leading Unionist senator, introduced a proposition for a constitutional amendment, in substance as follows: (1) Slavery to be abolished in all national territory north of 36° 30′, and recognized and protected south of it, the people to decide the status on its becoming a State; (2) not to be abolished in forts or other Federal territory in slave States; (3) nor in the District of Columbia while it existed in Maryland and Virginia, nor at all without consent of the inhabitants, and compensation, nor slaveholders forbidden to bring their slaves thither; (4) the interstate slave-trade never to be prohibited; (5) the United States to pay for all fugitive slaves rescued by violence, and sue the county of rescue, which could sue the individuals; (6) no future amendment ever to affect these provisions, nor Art. I., § 2, ¶ 3, nor Art. IV., § 2, ¶ 3 of the Constitution; nor to give Congress power to abolish slavery in a slave State. Four resolutions were appended, declaring the Fugitive Slave Act constitutional, urging the repeal of the State personal-liberty laws, promising the modification of two specially obnoxious features of the Fugitive Slave law, and the rigorous suppression of the outside slave-trade. The legislatures of Virginia, Kentucky, Tennessee, and New Jersey instructed their delegates to the Peace Conference of 1861 to support it. In Congress, Crittenden continued to press it during the session. It was lost in the House 1861, Jan. 14, 113 to 80; in the Senate March 2, 20 to 19.

CRIZZEL, n. *krĭz′zĕl* [F. *grésiller*, to drizzle; *grésillé*, covered or hoar with rime—from *grès*, sandstone, gritstone; Ger. *gries*, gravel, grit]: a roughness on the surface of glass which clouds its transparency.

CROAK, n. *krōk* [AS. *cracetan*, to croak: Gael. *gróc*, to croak: Ger. *krachzen*, to croak: L. *crocio;* Gr. *krozō*, I cry

as a raven]: the cry of a frog or raven; any low harsh sound: V. to make a low hoarse noise in the throat, as a frog; to utter a low muttering sound; to grumble. CROAK'-ING, imp. CROAKED, pp. *krōkt*. CROAK'ER, n. one who murmurs or grumbles; one who looks upon the worst side of things; a pessimist.

CROATIA, *krō-ā'shĭ-a:* a region forming part of the Austrian empire. With Slavonia it forms one of the administrative divisions of the kingdom of Hungary; joint area 16,423 sq. m.; joint pop. (1900) 2,400,766. Croatia lies n.e. of the Adriatic, and borders on one side with Turkey. It is traversed by low chains of mountains, in the s. proceeding from the Julian Alps, and in the n. from the Carnic Alps. These mountains are generally covered with forests, and the chains are separated by very fertile valleys. The principal rivers are the Save and its affluent the Culpa, the Drave and its affluent the Mur. Some of the valleys, especially in the south, are quite shut in, so that many of the streams have to make their way through subterranean channels. The climate much resembles that of the neighboring parts of Hungary, the more s. situation being counterbalanced by the greater elevation. The inhabitants are mostly of Slavonic race and language. The religion of Croatia is that of the Roman and Greek churches. The Croatians are warlike, but the name *Croats* is employed to designate light-cavalry regiments in the imperial army, in which Magyrs and others are mingled with true Croatians. Grain, chestnuts, wine, and gall-nuts are among the principal exports of Croatia. The keeping of cattle is neglected. The wood of the great forests, though much of it is admirably adapted for shipbuilding, is as yet little used. The *Litorale* or coast distr. contains valuable marble quarries. The capital of Croatia is Agram (q.v.). Croatia with its *Litorale* and Slavonia (q.v.) formerly formed a crown-land, at the head of the administration of which was the Ban (q.v.) of Croatia. Croatia was, in earliest historic times, inhabited by the Panonians, who were conquered by the Romans under Augustus, and the country was made a province of Illyria. During the irruptions of the northern nations into the Roman empire, Croatia suffered a variety of vicissitudes. In 640, the Croats, Chrovats, or Horvats, migrated into it from the Carpathian Mountains, and gave it its present name. In the 14th c., having previously been in some measure incorporated with Hungary, Croatia was more completely united with that kingdom, and passed with it, in the beginning of the 16th c., to the Austrian house of Hapsburg. In the end of the 16th c., the Turks conquered a portion of it, now known as Turkish Croatia. The city of Fiume was declared 1797 to be a constituent and integral part of the kingdom of Hungary; and after the termination of the French wars, Fiume remained united to Hungary till 1848. The Croatians long entertained a feeling of hostility to the Magyars, which manifested itself in 1848 and 9 in a manner very

unfavorable to the Hungarian revolution; and early in 1903 a revolt broke out, due to the old cause, which in May threatened to extend to Dalmatia. The Croatians also attrib. much of their property to the financial methods of Hung.

CROATS, n. plu. *krō′ăts:* inhabitants of *Croatia;* Austrian light-cavalry.

CROCEOUS, a.: see under Crocus.

CROCHE, n. *krōch* [OF.]: a little knob which grows at top of a deer's horn.

CROCHET, a. *krō′shā* [F. *crochet,* a little hook—from *croc,* a hook: Icel. *krokr,* a hook]: applied to fancy-work performed with a hooked needle: V. to do fancy-work with a hooked needle: N. in *fort.,* a cut into the glacis opposite a traverse, continuing the covered-way around the traverse. Crocheting, imp. *krō′shā-ĭng.* Crocheted, pp. *krō′shād.*

CROCHET: species of handiwork, which may be described as an extensive system of looping, by means of hooks made for the purpose. The method is as follows: With a hook of size proportioned to the fineness of the cotton or wool employed, begin by making a chain of loops. Then turn, and, with the hook still in the last loop, begin the double process of catching the thread through each loop of the chain, and also through that in which your hook is, and thus form another chain attached to the first, and so on. This is called simple or plain crochet. Endless varieties of patterns may be formed, and lightness and elegance attained, by twisting the thread one or more times in taking up the loop, and open work is formed by passing one or more loops. This work may be made round by beginning with a very few loops, joining the first to the last, and then proceeding to take several loops through one, and so widening on.

CROCIDOLITE, n. *krō-sĭd′o-lite* [Ger. *krokydolith*—from Gr. *krokis, krokus,* woof, in allusion to the fibrous structure]: fibrous, opaque mineral, in aspect like asbestos. Hardness 4; color, blue or green.

CROCIN, a coloring matter obtained from the fruit of *Gardenia grandiflora,* Chinese yellow pods, *hoang-tchy,* which is largely used in China for dyeing silk, wool, and other fabrics yellow. The color is extracted from the pods by a complex process, and forms a red powder, which is soluble in water and in spirit. By dilute acids it is decomposed into *crocetin,* which dyes a fine yellow.

CROCK, n. *krŏk* [Dut. *kruycke;* Ger. *krug;* Icel. *krukka;* Dan. *krukke;* W. *cregen,* an earthen vessel, a pitcher: Gael. *croch,* of a dull-red color]: a vessel of earthenware of the coarsest kind, of a dull-red color; an earthen pot or pitcher; in *OE.,* soot: V. in *OE.,* to black with soot. Crock′ery, n. *-er-ĭ* [W. *crochan,* a pot, crockery]: the coarsest kind of earthenware; earthenware in general. Crock, also Crok, a. *krŏk* [perhaps from same root]: applied to a ewe that has given over bearing—*lit.,* a dry earthen vessel.

I leave this rule, for others when I am dead
Be always sure, you are right, then go, a head

David Crockett

CROCKER, Francis Bacon, American electrician: b. New York, 1861, July 4. He was graduated at Columbia University in 1882; was employed as electrical engineer in 1882–9; became vice-president of the Crocker-Wheeler Electric Company in 1888, and professor of electrical engineering in Columbia University in 1889. He was president of the American Institute of Electrical Engineers in 1897–8, of the New York Electrical Society in 1892–5; and is author of *Practical Management of Dynamos and Motors; Electric Lighting;* etc.

CROCKETT, *krŏk'ĕt*, David: 1786, Aug. 17—1836, Mar. 6; b. Limestone, Tenn.: pioneer. He spent his early years hunting, trapping, and teaming, in the wildest sections of the west; settled in Franklin co., Tenn., 1811; served through the Creek Indian-war, 1813; and then established himself at Shoal Creek, Tenn., with a colony of settlers who elected him magistrate. He was elected to the legislature 1821 and '23, and to congress, as an adherent of his friend Gen. Jackson, 1826 and '28, and again 1832, losing the intermediate term by opposing Jackson's Indian policy. At the close of his last term he joined the Texans in their struggle against Mexico, and was one of the six surviving defenders of the Alamo who after surrendering were shot by Santa Anna. He was very popular wherever he went, was noted for his humor and eccentricity, and had great shrewdness and common-sense.

CROCKETT, Samuel Rutherford: clergyman and novelist: b. Little Duchrae, Galloway, Scotland, 1860; son of a crofter. He graduated from the arts dept. in the Univ. of Edinburgh 1880. As private tutor he travelled over Europe and parts of Asia and Africa, afterward utilizing his observations in his writings. On returning to Scotland he studied theology, and later filled the Free Church pulpit at Penicuik, Midlothian. *The Stickit Minister*, his first novel, appeared 1891; followed by *The Raiders* (1894); *The Men of the Moss Hags* (1894); *Mad Sir Uchtred* (1894); *The Play Actress* (1895); *The Lilac Sunbonnet* (1894); *Bog Myrtle and Peat*(1895);*Sweetheart Travelers* (1896); *Cleg Kelly* (1896); *The Grey Man* (1896); *Lad's Love* (1897); *Lochinvar* (1897); *Sir Toady Lion* (1897); *The Standard Bearer* (1898); *The Red Axe* (1898); *The Black Douglas* (1899); *Lone March* (1899); *Kit Kennedy* (1899); *Joan of the Sword Hand; Little Anna Mark* (1900); *The Stickit Minister's Wooing* (1900); *The Silver Skull* (1900); *Cinderella* (1901); *Love Idylls* (1901); *The Firebrand* (1901); *The Dark o' the Moon* (1902); *Flower o' the Corn* (1902); *An Adventurer in Spain* (1903); *Red Cap Tales* (1904); *Raiderland* (1904); *Strong Mac* (1904); *The Loves of Miss Anne* (1904); *Maid Margaret* (1905); etc.

CROCODILE, n *krŏk'ō-dīl* [L. *crocŏdīlus;* Gr. *krokŏdeilos*]: a large voracious reptile of amphibious habits, in shape resembling a lizard, and covered with scutes: ADJ. like a crocodile; false. CROC'ODIL'IAN, a. *-dĭl'ĭ-ăn*, pertaining to: N. an animal akin to the crocodiles. CROC'ODIL'IA, n. *-ĭ ă*, an order of reptiles, including the crocodile, the gavial, and the alligator. CROCODILE'S TEARS, false or hypocritical tears.

CROC'ODILE (*Crocodilus*): genus of Saurian reptiles, type of the family *Crocodilidæ;* which some naturalists have erected into a distinct order of reptiles (*Loricata*), on account of the square bony plates with which their bodies are covered, instead of the scales of the other saurians; the greater solidity of the skull; the lungs not descending into the abdomen; and the approach which they make to mammalia and birds in the structure of the heart. The heart has two auricles and two ventricles; but a mixture of arterial and venous blood takes place at some distance from the heart, so that the hinder part of the body receives an imperfectly aërated blood, which, however, is supposed to be further aërated in the surface of the peritoneum, two curious openings admitting the water, in which these animals ordinarily live, into the internal cavity of the abdomen. The *Crocodilidæ* may be described as lizard-like in form, with a great gape, indicative of their characteristic voracity, and with the tail flattened at the sides, so as to become a powerful organ of propulsion in water. The fore-feet have five toes, the hind-feet four, the three inner ones only being armed with claws: the feet are more or less webbed. Each jaw has a single row of numerous large teeth, which are conical and directed backwards; planted in distinct sockets, and becoming hollowed at the base, to admit the crowns of the new and larger teeth which are to succeed them as the animal increases in size. Small ribs are attached to the vertebræ of the neck, which give it a peculiar stiffness, and make it difficult for the animal to turn; and persons pursued by crocodiles may therefore make their escape by rapid turning. The eggs of the *Crocodilidæ* are hard, and small in comparison with the size of the animal. The females of some, if not of all the species, guard their eggs, and take care of their young; though the eggs, buried in the sand or mud, are hatched by the heat of the sun alone. The *Crocodilidæ* swallow stones, apparently to assist digestion. They prey on fishes and warm-blooded animals; most of them seem to prefer food in a state of incipient putrefaction, and they are even said to hide their prey, and to return to it when it has reached this state. Some of the larger kinds do not scruple to attack man.—All the *Crocodilidæ* are large reptiles; they are found in fresh waters and estuaries in the warm parts of the world; none are found in Europe, nor, as far as is yet known, in Austra-

Crocodile's Tooth: Showing the hollow at the base in which the summit of the new tooth is sheathed.

us. They are divided into Gavials, Crocodiles, and Alligators (the latter including caymans).—The true Crocodiles are found both in the Old World and the New. The muzzle is not slender and elongated, as in the gavials, but oblong and flattened; the teeth are very unequal in size, the long fourth teeth of the lower jaw fitting into *notches* of the upper, not into pits, as in alligators. To this genus belongs the C. of the Nile (*C. vulgaris*), which abounds also in many other rivers of Africa. It is of a bronzed green color, speckled with brown, lighter beneath, and is sometimes 30 ft. long. It often seizes human beings for its prey. In Park's *Travels*, an instance is recorded of a negro, one of his guides, who was thus seized in the Gambia, and escaped by thrusting his fingers into the crocodile's eyes. The ancient Egyptians held it sacred, and being exempted from all danger on the part of man, it became more bold and troublesome. The individuals particularly selected as the objects of idolatrous worship were tamed, and took part in religious processions. *Souchis* was the name of the deified individual, the C. god.—The DOUBLE-CRESTED or INDIAN C. (*C. biporcatus*) is very abundant in many parts of Asia, in rivers and estuaries, and is also dangerous to man. The smaller marsh C. (*C. palustris*), abundant in stagnant waters in the same regions, flees from man, and often seeks to hide itself in the mud, into which it thrusts at least its snout, then remaining contented, as if in perfect safety. Crocodiles often bury themselves in the mud in droughts, and so abide till rain falls.—The names C. and Alligator are often indiscriminately used in popular language. See ALLIGATOR.

CROCOISITE, n. *krō-koy'zīt* [Gr. *krokoeis*, of a saffron or yellow color]: the chromate of lead; red lead ore—used as a pigment.

CROCUS, n. *krō'kŭs* [L. *crocus;* Gr. *krokos;* Gael. *croch*, red-yellow]: an early spring-flower, a well-known genus of the ord. *Iridāceæ;* saffron; a yellow powder. CROCEOUS, a. *krō'shĭ-ŭs*, like saffron; yellow.

CRO'CUS: genus of plants of the nat. ord. *Iridaceæ*. The species have much general similarity, and are natives chiefly of the s. of Europe and of the East. Saffron (q.v.) is the produce of *C. sativus*. Some of the species are cultivated in gardens for the beauty of their flowers, particularly those which, as *C. vernus* and *C. luteus*, flower very early in spring. The saffron C. and some other species flower in autumn. The flowers of one or two species are fragrant. It is necessary frequently to take up C. roots and plant anew, on account of the manner in which the corms multiply: see CORM.

CRO'CUS OF AN'TIMONY: oxysulphide of antimony (q.v.).

CRO'CUS OF MARS: finely divided red oxide of iron.

CROESUS, *krē'sus*: last king of Lydia; succeeded his father, Alyattes, B.C. 560. He made the Greeks of Asia Minor his tributaries, and extended his kingdom eastward to the Halys. From his conquests, his mines, and the golden sand of the Pactolus, he accumulated so much treasure, that his wealth has become proverbial. He gave himself up to a life of pleasure and sumptuous extravagance, and is said to have deemed himself the happiest man in the world, and to have been displeased when Solon, on a visit to his court, told him that no man should be called happy till his death. He soon found how uncertain was a happiness such as his; for his beloved son Atys was killed while hunting, and there was left to him only one son, who was dumb; and having engaged in war with Cyrus, he was totally defeated, his kingdom conquered, and himself made prisoner, and condemned to be burned (546). At the funeral pyre, his repeated exclamation of 'O Solon!' drew on him the attention of the conqueror, and the reason of it being known, his life was spared, and he was treated with great kindness.

CROFT, n *krŏft* [AS. *croft*, a small farm: Dut. *kroft*, a hillock, high land: Gael. *croit*]: in *Scot.* and *OE.*, a small field connected with humble kind of dwelling, whose inhabitant, the renter of the land, is called a *crofter*. In the Highlands and islands of Scotland, where the crofting system is especially common, it is usual for the crofter to have, besides his cottage, a small patch of land for tillage; while the crofters of the township collectively, in certain proportions or 'summings,' have a right of pasturage on the adjoining hill pasture or moorland. Of late, grave complaints have been made by the crofters, or on their behalf, that the great poverty and bad farming which admittedly prevail among them are due to removable and unjust causes. It is alleged that they have no leases; they have no compensation for any improvements they may make on their holdings, but on the contrary, usually have their rents capriciously raised; the land is exhausted by continual manuring with sea-weed only; townships have frequently been removed from fertile land and put on less fertile tracts in order to make large sheep runs or deer forests; the number of crofters on a given area has often been much increased in a given township or area without any corresponding reduction in rent; while eviction on short notice depends on the arbitrary decree of the landlord or the goodwill of the factor. Others affirm that the evils complained of are inseparable from the system, which is inherently bad; that the natural increase of the population leads to the excessive subdivision of crofts already too small to support a family; and that the smallness of areas to till makes the tillers fitful at work and lazy in habit. A royal commission to inquire into the crofters' grievances took evidence 1883: see their bulky report, published 1884. Many of the crofters are also fishermen during part of the year. Cottars are still more dependent than the crofters, and occupy huts occasionally

with a small garden, at small rents or sometimes rent free. See AGRICULTURE: FARM: SPADE-HUSBANDRY.

CROFT, *kroft*, WILLIAM, MUS. DOC.: 1677–1727; b. Warwickshire, England: organist and composer. He received a thorough musical education; was appointed organist in Westminster Abbey and composer to the chapel royal 1708; received his degree from Oxford Univ. 1715, and published an edition of his anthems under the title of *Musica Sacra*, 2 vols. folio, 1724. His remains were interred in the Abbey.

CROIA, *krō'yâ*, or CROJA: town of Albania, Turkey, on a mountain spur, 45 m. s.e. of Scutari. It is the chief town of the Mirdites, a Rom. Cath. tribe of Albanians, who are almost independent. Pop. 6,000.

CROIX, STE. (or SANTA CRUZ): see VIRGIN ISLANDS.

CROIX, ST. (river): see ST. CROIX.

CROKER, *krō'kėr*, JOHN WILSON: 1780, Dec. 20—1857, Aug.; b. Galway, Ireland: English politician and *littérateur*. Educated at Trinity College, Dublin, he entered Lincoln's Inn 1800, and was called to the Irish bar. His first literary attempt was a satire on the Irish stage; and in 1805, he published another equally clever satire on the city of Dublin. In 1807, he issued a treatise on the *State of Ireland, Past and Present*, and was elected member of parliament for Downpatrick. A warm defense in parliament, 1809, of the Duke of York, helped C. in the same year to the office of sec. to the admiralty, a post which he held for 20 years. He was one of the founders of the *Quarterly Review*, and contributed many of the most violent party articles to its pages, as well as a large number of those bitterly personal and grossly abusive reviews which were wont to disfigure that periodical. As 'Rigby,' allowance being made for the satire, his character is not badly hit off by Disraeli, in *Coningsby*. In parliament, C. steadily opposed the Reform Bill in all its stages, and its enactment ended his parliamentary career; but on all questions relative to the promotion of the fine arts, he was much ahead of the great majority of the commons. He was active in the establishment of the Athenæum Club, and rendered good service to literature by his annotated edition of Boswell's *Johnson*, and his publication of the *Suffolk Papers*, and Lord Hervey's *Memoirs of the Court of George II.* His *Stories from the History of England for Children*, supplied Scott with the idea of *Tales of a Grandfather*.

CROKER, RICHARD: New York politician: b. Roscarberry, Ireland, 1843, Nov. 24. His parents emigrated to America when he was 3 years old, and his father was a capt. in the civil war. C. learned the trade of machinist, was an active volunteer fireman, and a popular politician. He was a member of the New York board of aldermen 1867–70; coroner 1873–79; fire-commissioner, and city chamberlain 1889. He succeeded John Kelly as chief of Tammany Hall, controlling the whole Democratic

organization of the city. In 1893, he made large investments in racing stock. In 1894, he went to England, but returned to New York in 1897; formally retired from the leadership of Tammany Hall, 1902, Jan. 11.

CROKER, T. Crofton: 1798, Jan. 15—1854, Aug. 8; b. Cork, Ireland: author. He early began the collection of legends and songs of the Irish peasantry. The series of publications embodying his researches shows a happy blending of humor, sentiment, and learning.

CROLL, James, ll.d.: physicist: 1821—1890, Dec. 15; b. Little Whitefield, Perthshire, Scotland. He was almost entirely self-educated; till the age of 24 yrs. he worked as a millwright and afterward was an insurance agent, but 1859–67 he was keeper of the Andersonian Univ. Museum, Glasgow; and then, till 1881, was connected with the geol. survey of Scotland. The degree ll.d. was conferred on him by the Univ. of St. Andrews 1876 and the same year he was elected fellow of the Royal Soc. of London. He was author of about 90 memoirs and contributions to periodicals on geol. and physical subjects; also of *Climate and Time* (1875); *Philosophy of Theism; Discussions on Climate and Cosmology; Stellar Evolution; Determinism, not Force, the Foundation Stone of Evolution* (1890).

CROLLIUS, Oswald, German chemist: b. Wetter, Oberhessen, about 1580; d. 1609. He is now remembered as the author of a work entitled, *Basilica Chymica*, which appeared at Frankfort in 1609, and went through 18 editions, was translated into French, into German, and by Richard Russell into English, under the title of *Royal and Practical Chemistry* (London 1670). This is a remarkable mixture of speculative ideas about the action of chemical substances in different diseases, and practical skill in the preparation of the substances themselves. Crollius was obviously quite familiar with the details of the processes he describes, and by his manipulative skill he discovered new preparations, which he introduced into medicine, and which still remain, this practical ability seeming to give weight to his therapeutic theories.

CROLY, *krō'lĭ*, David Goodman, American journalist: b. New York, 1829, Nov. 3; d. New York, 1889, April 29. He was educated at the University of New York; was reporter on New York papers in 1855–8; city and managing editor of the New York *World* in 1860–72, and editor of the New York *Daily Graphic* until 1878. He foretold the financial panic of 1873, naming the firm of Jay Cooke & Company as the first to fail. His publications include a *History of Reconstruction* (1868); *Primer of Positivism* (1876); etc.

CROLY, *krō'lĭ*, George, D.D.: abt. 1785–1860, Nov. 24; b. Dublin; English poet, romance-writer, and preacher. He was educated at Trinity College, Dublin; entered the English Church, and ultimately became Rector of St. Stephen's, Walbrook, London. His first work was a poem, *Paris in* 1815. From this time till near his death, his pen

was almost incessantly at work—on satire, comedy, tragedy, romance, tales, biography, magazine articles, and the weightier matters of religion. His best known work is the romance of *Salathiel.* Croly was famous as a pulpit orator.

CROLY, JANE (CUNNINGHAM), (pen-name JENNY JUNE): 1831, Dec. 19—1901, Dec. 23; editor and author; b. Harborough, Eng. She was educated at Poughkeepsie, N. Y.; in 1857 married David Goodman Croly, formerly city ed. of the *World* (New York) and ed. of the *Graphic;* became herself ed. of Demorest's publications, and did work on the *World, Graphic, Times,* and *Messenger;* invented the system of duplicate correspondence; brought together the first Woman's Congress, New York, 1856; founded 'Sorosis,' a literary sisterhood, as its name implies; was its pres. 1868–70 and 76–86; held high office in the Assoc. for Advancement of Med. Education for Women; became ed. of *Godey's Lady's Book* 1887; and succeeded Mrs. Terhune (Marion Harland) as ed. of the *Home-maker* 1890. Some of her publications are: *Talks on Women's Topics* (1869); *For Better or Worse* (1875); *Cookery-book for Young Housekeepers; Letters and Monograms* (1885–6); and *Knitters and Crochet.*

CROMA, n. *krō'ma* [It.]: in *music,* a quaver (q.v.).

CROMARTY FIRTH, *krŏm'ar-tĭ fėrth:* landlocked inlet of the North Sea, on the n.e. coast of Scotland. The entrance to Cromarty Firth is by a strait between two high wooded cliffs or headlands, only 1½ mile across, with 12 to 30 fathoms of water, and with the Three Kings Reef, about half a mile off land. Near the Firth are the towns of Dingwall, Invergordon, and Cromarty. In the old red sandstone, near the mouth of the Firth, Hugh Miller discovere the fossil fishes *Pterychthys, Osteolepis,* etc.

CROMARTYSHIRE, *krŏm'ar tĭ-shėr:* county of the n. of Scotland, intimately connected, geographically and politically, with Ross-shire, and consisting of ten detached portions in the interior, and along the northern borders of Ross-shire. Area, 344 sq. m., or less than one-eighth of Ross-shire: see ROSS AND CROMARTY.

CROMDALE, *krŏm'dāl:* village on the e. bank of the Spey, Inverness-shire, at which was fought the battle of Cromartyshire, 1690, May 1, between a small remnant of the adherents of the house of Stuart, who kept in arms after the death of Viscount Dundee, and the forces of King William, in which the latter were victorious. This encounter has been rendered famous by a song, not historically accurate, entitled *The Haughs of Cromdale.*

CROME, *krōm,* JOHN (sometimes called OLD CROME, to distinguish him from others of his family who painted in the same manner): 1769, Dec. 21—1821, Apr. 22; b. Norwich: English landscape painter. While a coach-painter's apprentice he gave his leisure to sketching from nature, and a friend enabled him to exchange this work for that of a drawing-master, which became the occupation of his life. Crome contributed largely to the exhibitions of the Norwich

Soc. of Artists, of which he was president, and sent a few paintings to the London Royal Academy. His reputation has increased since his death, and he now takes a high place amongst English landscape painters. His subjects are drawn chiefly from the scenery of his native country, and he is a masterly draughtsman of trees. His *Mousehold Heath,* in the national gallery, is one of the best pictures of a broad, open heath scene.

CROMER, *krō'mėr:* seaport and watering-place on the n. coast of Norfolk, Eng., 21 m. n. of Norwich. It stands on the top of one of the highest cliffs of the coast. Nearly all the old town, called Shipden, with one of the churches, was swept away by the sea about 1500. Pop. of parish 1,500.

CROMER, Evelyn Baring, Earl: b. 1841; financier; was secretary to Lord Northbrook (gov.-gen. India) 1872–6; controller-general of Egyptian finance 1879-80; finance minister of India 1880-3; became consul-general and minister in Egypt, 1883; created visc. 1899, and earl 1901. He is known as 'The Maker of Modern Egypt.'

CROMLECH, n. *krŏm'lĕk* [W. *cromlech,* a crooked stone —from *crom,* bending; *llech,* a stone]: ancient monumental structure of rough heavy stones. It has been common among British archeologists, until lately, to apply this name to a rude structure of two or more unhewn stones, placed erect in the earth, and supporting a larger flat stone, also unhewn. According to its etymology, however, cromlech (Celt. *crom,* curved, and *leac,* a stone) is the proper term for circles of erect stones like Stonehenge (see Standing Stones); and the name *dolmen* (Celt. *daul,* a table, *maen,* a stone) is now considered more appropriate for the simple structure formerly called a cromlech. Monuments of the kind above described, whether called dolmens or cromlechs, are known among the common people by other names, such as 'the giant's grave,' 'the giant's bed,' 'the giant's quoit,' 'the fairies' table,' 'the devil's table,' 'the raised stone,' 'the old wives' lift,' 'the hag's bed,' and the like.

Cromlechs (properly dolmens) are found in England, Wales, Scotland, Ireland, the Channel Isles, France, Spain, Germany, Denmark, and some other countries of Europe; in Hindustan and elsewhere in Asia; and in America. They are generally without any enclosure; but occasionally they are fenced round with a ring of unhewn stones. In a good many instances, cromlechs have been discovered in the heart of earthen mounds or barrows. In such cases, the rude chamber or inclosure of the cromlech is found to contain sepulchral remains, such as skeletons or urns, together with weapons or ornaments generally of stone or bone, fragments of pottery, and bones of animals.. Similar remains have been found in the chambers of cromlechs not known to have been at any time covered by barrows. These facts have led modern archeologists to believe that the cromlech was a sepulchral monument. The theory of the older antiquaries, that the cromlech was a druidical altar, is without any foundation in what has been recorded

of the druidical worship by trustworthy writers. In a cromlech found under a barrow in Derbyshire, a skeleton and fragments of urns were discovered, with Roman coins of several emperors.

Among the more remarkable cromlechs in England are Kit's Coty House in Kent, Wayland Smith's Cave in Berkshire (commemorated by Sir Walter Scott in *Kenilworth*), and Chun Quoit in Cornwall. The weight of the flat stone in this last cromlech is estimated at about 20 tons. In the Marquis of Anglesey's park at Plas Newydd in Wales there are two cromlechs close beside each other; in the larger, five erect stones support a flat stone about 12 ft. long, 10 ft. wide, and from three ft. and a half to four ft. and a half thick. Cromlechs are comparatively rare in Scotland. The best among the well-ascertained examples is perhaps that called 'The Auld Wives' Lift,' near Craigmeddan Castle, in the parish of Bladernock in Stirlingshire. The recumbent stone, a mass of basalt, is 18 ft. long, 11 ft. wide, and 6 or 7 ft. thick, and the two stones which support it are of nearly the same size. It may be doubted if the partial elevation of the 'Witch's Stone' at Bonnington Mains, near Ratho, in the county of Edinburgh, has not been produced by natural causes. Among the Irish cromlechs, one of the most striking is that of Kilternan, about six m. from Dublin: the recumbent stone, which rests upon six blocks, is 23½ ft. long, 17 ft. wide, and 6½ ft. thick. A cromlech called 'The Broadstone,' in the county of Antrim, is surrounded by a circle of standing stones, or erect unhewn pillars. A cromlech in the Phœnix Park, Dublin, was discovered 1838 in removing a large barrow: specimens of the sepulchral remains found in it are shown in the Museum of the Royal Irish Academy. See DOLMEN.

CROMORNA, n. *krō-mŏr'nă* [F. *cromorne;* It. *cromorno*]: a reed-stop in the organ.

CROMPTON, *krŏmp'ton*, SAMUEL: inventor of the spinning-mule: 1753, Dec. 3—1827, June 26; b. Firwood, Bolton, Lancashire, England. Bolton, in those days, was nearly inaccessible, and so bleak and barren that agriculture was not followed further than to supply the wants of the population. All the farmers had looms in their houses, and their families were occupied in spinning and weaving. Crompton's father, who was a small farmer, lived at the Hall-in-th'-Wood, a picturesque old mansion near Bolton. He died at an early age, leaving a wife and a son (Samuel), and two daughters. Like his father, Crompton was brought up to the loom and the farm. His mother, a woman of great energy, perseverance, and stern independence, struggled hard to give him and her daughters the best education the district afforded. When he was old enough, he assisted her in the farm, and wove; going to Bolton at night to complete his education in mathematics, etc. At the age of 21, he was so much annoyed at the difficulties in getting yarn to weave, that he set to work to invent a spinning-machine which should produce better yarn than Hargreaves', one of which his mother possessed. For five

years, he labored to realize his idea, sitting up late at night to overcome the successive difficulties, and resuming his labor for daily bread early in the morning. At length he succeeded in framing a machine which produced yarn of such astonishing fineness, that the house was beset by persons eager to know how such wonderful and desirable yarn could be made. He was rendered miserable. All kinds of devices were tried to gain admission; even ladders were placed against his windows. His machine was such that if a mechanic saw it, he could carry away the leading features of it. He could not leave the house for fear of his discovery being stolen from him. He had spent every farthing he had in the world upon its completion; he had no funds wherewith to have obtained a patent, and it is doubtful whether a patent would have altered his fate. When he was thus almost driven to desperation, one of the manufacturers went to him and persuaded him to disclose the invention to the trade, under the promise of a liberal subscription. Inexperienced in the world, he agreed to this. The machine was exhibited, but all that he got was about £60. This money was not paid to him at the time, but he had to travel for many miles round the country to collect it. Some refused to pay, though he showed them their signatures. He set manfully to work with his machine, determined to make the best he could of his ill-luck. In the course of time, he saved money enough to begin manufacturing on a small scale, but not till his rivals had nearly 20 years' start of him in the business. Then his wife died, leaving him a large family. Efforts were made to obtain for him a national reward. Five thousand pounds was all he obtained, and he returned to Bolton almost broken-hearted. Misfortune upon misfortune overtook him till he died. Some idea may be formed of the vast services he has rendered to the world, and especially to his native land, by the fact that his is by far the most used of all spinning-machines In 1811, the number of spindles on Crompton's principle was 4,600,000, while there were only 310,500 of Arkwright's, and 155,880 of Hargreaves'. At the present time, it is conjectured that there are 25,000,000 of Crompton's spindles at work.

CROMWELL, Bartlett Jefferson, American naval officer: b. Georgia, 1840, Feb. 2. He was at the Naval Academy 1657–60, and is said to have been the first naval cadet appointed from Nebraska. He served on the St. Lawrence, Quaker City, and Conemaugh with the South Atlantic blockading squadron 1860–3; and with the East Gulf squadron 1863–5. He was commissioned commander 1874, Oct. 24; was inspector of ordnance 1878; on duty at Portsmouth navy yard 1882–5; League Island navy yard 1886–9; and promoted captain in March 1889. At the conclusion of the Spanish-American war he was ordered to Havana to receive the surrender of the naval station there. He became a rear admiral 1899, Mar. 3, and was retired 1902, Feb. 9.

CROMWELL, *krŭm'wel* or *krŏm'wel* HENRY: 1628, Jan. 20—1673, Mar. 23; b. Huntingdon, England: second son of the Lord-Protector. He was educated at Felstead, entered the parliamentary army when 16 years old, had command of a troop in Fairfax's life guards when 20, and accompanied his father to Ireland as col. when 21. He was elected to parliament by Cambridge Univ. 1654, returned to Ireland as maj gen. 1655, became lord deputy 1657, was recalled by the govt. on the retirement of the Protector, and passed the last years of his life in Cambridgeshire as a farmer.

CROM'WELL, OLIVER, Lord Protector of the English Commonwealth: 1599, Apr. 15—1658, Sep. 3; b. Huntingdon. His father was the younger son of Sir Henry Cromwell of Hinchinbrook, and a substantial country gentleman, not likely to have been a brewer, as some of Oliver's earlier biographers assert. By his mother, genealogists trace Oliver's descent from the royal house of Stuart. Of the boy Cromwell's early life little or nothing is actually known. What is clearly ascertained is, that after having been at school in Huntingdon he went to Cambridge, and entered himself of Sidney-Sussex College, 1616, Apr. 23. He had but short time for study here, his father dying in the June of the year following, when he returned home to take the management of his father's affairs. The stories of his wild life about this time appear to have no better foundation than the calumnies of his royalist opposers. In 1620, Aug., C. married the daughter of Sir James Bourchier, a gentleman of landed property in Essex, who had also a residence in London. This fact seems conclusive as to C.'s social position being much above what his enemies have described it. C. now became intimately associated with the Puritan party, among whom he was soon distinguished alike for his earnestness and sagacity. In 1628, having been elected by the borough of Huntingdon, C. made his first appearance in parliament. He had but time to make a short blunt speech about the encouragement of the 'preaching of flat popery at Paul's Cross' by the bishop of Winchester, when the infatuated king unceremoniously dispatched him and his fellow-commoners to their homes. C. returned to the fen-country, not much impressed in favor of kingcraft by his visit to London; and for the next 11 years devoted himself assiduously to the pursuit of farming by the Black Ouse river and the Cam, first at Huntingdon, then at St. Ives, and finally at Ely—making himself famous, not by political agitation, but by an effectual resistance to certain unjust schemes of the king in council for the drainage of the Fens. In 1640, he was sent to parliament as member for the town of Cambridge. His appearance at this time was by no means prepossessing. Sir Philip Warwick describes him in 'a plain cloth suit, which seemed to have been made by an ill country tailor; his linen was plain, and not very clean; and I remember a speck or two of blood upon his little band, which was not much larger than his collar. His hat was without a hat-

band; his stature was of a good size; his sword stuck close to his side; his countenance swollen and reddish; his voice sharp and untunable; and his eloquence full of fervor,' and courtly Sir Philip adds: 'It lessened much my reverence unto that great council, for this gentleman was very much hearkened unto ' When all hope of reconciliation between king and parliament failed, through the perfidy of the former, C. was among the first to offer of his substance to aid in defense of the state In 1642, July, he moved in parliament for permission to raise two companies of volunteers in Cambridge, having been careful to supply the necessary arms beforehand at his own cost. In the following month, C. seized the magazine in Cambridgeshire, and prevented the royalists from carrying off the plate (valued at £20,000) in the university there. As captain of a troop of horse, C. exhibited astonishing military genius; and against the men trained by himself—'Cromwell's Ironsides' —the battle-shock of the fiery Rupert, which at the beginning of the parliamentary struggle none else could withstand, spent itself in vain. Soon promoted to the rank of colonel, and then to that of lieut.gen., C., in the fight of Winceby, on the bloody field of Marston (1644, July 2), and in the second battle of Newbury (1644, Oct. 27), bore himself with distinguished bravery; but owing to the backwardness of his superiors, the results of these victories to the parliamentary cause were not so great as they might reasonably have been. C. thus complained in parliament of the backwardness of his superiors, Essex and Manchester: 'I do conceive if the army be not put into another method, and the war more vigorously prosecuted, the people can bear the war no longer, and will enforce you to a dishonorable peace.' Hereupon, the 'Self-denying Ordinance'—an act excluding members of the houses of parliament from holding command in the army—was passed; but C.'s services were considered of such importance to the common weal, that they were exceptionally retained. Of the new model army, Fairfax was appointed general, C. serving under him as lieut.gen. of the horse, and in this capacity he commanded the right wing of the parliamentary army at Naseby, 1645, June, and acquitted himself so well there that the king's forces were utterly ruined. The royalists in the west were now speedily reduced. Bristol was stormed; everywhere the royal cause was failing; and Charles himself, reduced to the last extremity, in 1646, May, escaped from Oxford in disguise, and threw himself into the arms of the Scotch army at Newark (1646, May 5), by whom he was shortly given up to the parliamentary commissioners. The source of the strife now fairly within their grasp, the parliament and the army, in the former of which the Presbyterian, and in the latter the Independent, element predominated, became jealous of each other's power. With his usual sagacity, C. perceived that the advantage would lie with that party who held possession of the king's person, and with ready decision he had him removed from the hands of the commissioners into those of

CROMWELL.

the army, 1647, June. Some of the leading Presbyterians were now turned out of parliament by the army, and Independency, with C. at its head, was gradually obtaining the ascendency. The king still remained with the army, and, with his usual duplicity, negotiated with both parties, not without hope that out of their mutual dissensions might arise advantage to himself. 1647, Nov. 11, the king made his escape from Hampton Court. Two days afterward he was in custody of Colonel Hammond in the Isle of Wight. At this time the country was in a critical condition. The Welsh had risen in insurrection, a Scotch army was bearing down from the north with hostile intent, and Rupert, to whom 17 English ships had deserted, was threatening a descent from Holland, not to speak of the rampant royalism of Ireland. Prompt measures alone could prevent anarchy and inextricable confusion, and C. was not afraid to employ them. Pembroke had to surrender, and at Preston Moor the Scotch were utterly defeated. On the return of the army to London, the Presbyterians, who were still blindly temporizing with the king, to the number of more than 100, were driven out (1648, Dec.) by the proeess known in history as 'Pride's Purge.' Then that which C. thought the only event that could end the strife happened. In 1649, Jan., the king was tried, condemned, and put to death. The abolition of the house of lords followed speedily, and C. became a prominent member of the new council of state; and in the army, though still only lieut.gen., he had really much more influence than the commander-in-chief. The royalists being still strong and rebellious in Ireland, C. went thither in August, with the title of lord-lieut., and commander-in-chief of the army there; and ere nine months had passed he had subdued the country so far that it might be safely left to the keeping of his son-in-law, Ireton. C.'s measures for crushing the Irish rebels were severe, and even sanguinary, but, nevertheless, peace and prosperity followed in a degree unknown before in the history of that unhappy country. Affairs in Scotland now claimed C.'s attention. Scotch commissioners had been negotiating with Charles II. at Breda, had urged him to come among them and take the covenant, and they would crown him king over them at least, and do what force of arms could do to make him king of England also. Charles arrived in the north of Scotland, 1650, June 23; three days thereafter, Cromwell—the Presbyterian Fairfax having refused to fight against the Presbyterian Scotch—was appointed commander-in-chief of all the parliament forees. On July 15, Charles Stuart had signed the covenant, and was fully accepted by the Scoteh as king. On Sep 3, C. routed the Seotch army at Dunbar. Charles, with what force remained, and other accessions, afterward marched southward, and had penetrated to Worcester, when C. came up with him, and utterly overthrew the royalists on the anniversary of the battle of Dunbar. This battle placed C. avowedly at the head of public affairs in England, and to write his biography from this time, would be to write the history of the Commonwealth. The Long Parliament had now de-

generated into the Rump—had become, in truth, an oligarchy, given to long and useless discussions about mere technicalities—intolerable to the country alike for the extraordinary power it possessed, and for the weak, pusillanimous way in which it exercised it. C., therefore, dissolved the Rump, 1653, Apr. 20, and henceforth he alone was ruler in England. He immediately summoned a parliament of 140 persons, 138 of whom assembled July 4, but he found it necessary to dissolve it Dec. 12; its one great work having been the legal investiture of C. with the supreme power and the title of lord protector, a position upon which the principal foreign powers hastened to congratulate him. C. now acted in a very arbitrary manner, so far as his parliaments were concerned, calling them and dismissing them at pleasure; but his home policy, notwithstanding, was just and liberal toward the mass of the people, and conducive to the prosperity of the country; while his foreign policy was such as to secure England a position among nations more commanding than she had ever occupied before. Under C.'s rule, swift retribution followed any indignity or injury to Englishmen, no matter by whom or where perpetrated; and religious persecutors on the continent, in terror, stayed their bloody swords on the stern summons of the Lord Protector. He died 1658, Sep. 3, the anniversary of some of his most important victories. C. was buried in Westminster Abbey; but 1661, Jan. 30 (the anniversary of the death of Charles I.), his grave, with those of Ireton and Bradshaw, were broken open, the coffins dragged to Tyburn, where the moldering bodies were hanged, and then thrown into a deep hole under the gallows, while their heads were set upon poles on the top of Westminster Hall. Such was the sacrilegious brutality of the king and clergy (for the deed was done by their authority) toward England's greatest ruler. It was long a fashion with historians, content to rely upon the calumnies and falsehoods of royalist writers, to represent C. as a monster of cruelty and hypocrisy—a man with a natural taste for blood, who made use of religious phraseology merely to subserve his own ambitious ends; but after the researches of Carlyle and Guizot, the eloquence of Macaulay, and the clear statement and sound sense of Forster, such a view can no longer be held. C.'s religion was no mere profession, it was the very essence of the man; by nature, he was not a blood-shedder, and when necessity demanded the grim exercise of the sword, he unsheathed it with reluctance. Never was a religious man less of a bigot; he would not, so far as his iron will could effect his purpose, permit any one to be persecuted for religious opinions. He delivered Biddle, the founder of English Unitarianism, out of the hands of the Westminster divines. He would have even given the despised and persecuted Jews the right hand of citizenship. He grasped power, and dispensed with the formality of parliaments, only because in a time of fearful crisis, and of plots and intrigues on every side, he sought to promote, in the speediest possible manner, the prosperity, happiness, and glory of his native land.

CROM'WELL, Richard: son of Oliver, Lord Protector of England: 1626, Oct. 4–1712; b. Huntingdon; in early life, he was noted chiefly for indolence and love of pleasure, qualities that united him more closely to the cavaliers than to the party of earnest men of which his father was the chief. When Oliver attained the dignity of lord protector, he called his son from the obscurity of a country-house, and his field-sports, to have him elected for the counties of Monmouth and Southampton, appointed him first lord of trade and navigation, and made him chancellor of Oxford. In none of these capacities did Richard C. exhibit any aptitude; and his failure as protector, to which high office (being the eldest surviving son) he succeeded, on the death of his father 1658 Sept.—was still more conspicuous. With a mediocre intellect, and no energy, with hardly a friend in the army, and with the first parliament that he called against him, the result could not be otherwise than it was—his demission, 1659, Apr.—little more than seven months after he had assumed the sceptre of the Commonwealth. He retired to Hampton Court, whence parliamentary stinginess and pressing creditors soon drove him to the continent, where he resided for a considerable period. At length, returning to England, he had a house provided for him at Cheshunt, near London, where he resided in strict privacy until his death.

CROM'WELL, Thomas: English statesman and ecclesiastical reformer, of the reign of Henry VIII.: abt. 1490–1540, July 28; b. near London, in very humble circumstances, his father being a blacksmith. After a very meagre education, he went to the continent, and became clerk in a factory at Antwerp, where he gave his spare time to the acquisition of languages, in which he became very proficient. In 1510, he went into Italy, where he appears to have resided until about 1517, when he returned to England; and, after some time, was received into the household of Wolsey. That prelate, speedily recognizing his abilities, made him his solicitor and chief agent in all important business. As a member of the house of commons, C. warmly and successfully defended the fallen minister, his master, against the bill of impeachment—proof enough that he was not the heartlessly ambitious man that his enemies have represented him. Henry, admiring his chivalry, and appreciating his talent, made him his own secretary; knighted him in 1531, and made him a privy-councilor. Honors rapidly flowed in upon him; partly in consequence, it is said, of his having suggested to Henry the desirableness of throwing off the papal yoke altogether—an idea which suited well with the king's impetuous nature—but chiefly, no doubt, on account of his great abilities. In 1534, he had become chief sec. of state, and master of the rolls; in the following year, he was made visitor-gen. of English monasteries—which he afterward suppressed in such fashion as to obtain for himself the designation of *Malleus Monachorum*—and keeper of the privy seal in 1536. In 1539—to pass over a variety of minor tokens of royal approbation—he had

risen to be Earl of Essex—having had some 30 monastic manors and estates given him to keep up the dignity of his title—and Lord Chamberlain of England. C. led in establishing the doctrines of the Reformation, though he seems to have done so less on religious than on political grounds. The destruction of the pope's authority, and the establishment of the supremacy of the king in England, were what he labored to effect; and with this view, he promulgated the articles of the new faith, had English Bibles placed in the churches, and the youth of the nation taught the Creed, the Ten Commandments, and the Lord's Prayer; and ordered the removal of all images from the altar. In this matter of ecclesiastical polity, he has, says Mr. Froude (Vol. III of his *History of England*), 'left the print of his individual genius stamped indelibly, while the metal was at white heat, into the constitution of the country. Wave after wave has rolled over his work. Romanism flowed back over it under Mary; Puritanism, under another even grander Cromwell, overwhelmed it. But Romanism ebbed again, and Puritanism is dead, and the polity of the Church of England remains as it was left by its creator.' In all that concerned the state, in its vastest and most complicated foreign relations, as well in the smallest matters of sanitary reform at home, C. took an active personal interest. But the stern, almost savage manner in which, in the carrying out of his policy, he disposed of all who opposed him, led to many and loud complaints, which damaged somewhat his popularity with the king. In order to retrieve his lost ground, he was zealous in promoting the marriage of Henry with Anne of Cleves, from whom, on account of her known Lutheran tendencies, he expected strong support. The success of his efforts in this matter proved the utter ruin of C., for the king, early conceiving a strong aversion to his unlovely queen, extended that dislike to the minister who had so strenuously promoted the marriage. Complaints against C. poured in thicker and faster, and the royal ear was not unwilling to listen now. Charges of malversation and treason were made, and he was arrested and thrown into prison 1540, June 10; a bill of attainder was quickly drawn up, and passed the two houses of parliament with little difficulty; and on July 28, C. laid his head on the block on Tower Hill.

CRONE, n. *krōn* [Gael. *cronan*, a low murmuring sound; *crion*, dry, withered: Scot. *croon*, a hollow continued moan]: a name applied to a supposed witch who sings or chants her incantations; an old woman; in *OE.*, an old ewe. CRONY, n. *krō'nĭ*, an intimate companion or acquaintance.

CRONJE, PIET: a Boer commander; b. in 1835 in the Orange Free State (now Orange River colony); was conspicuous for years in the affairs of the South African republics. During the British-Boer war 1899-1902, he was in command of the Orange Free State forces. He conducted the campaign on the Modder river and the sieges of Mafeking and Kimberley. On 1900, Feb. 27, he surrendered to Lord Roberts. He was exiled to St. Helena in May following.

CRONSTADT, *krōn'stât* (Hungarian *Brasso*): town of Transylvania, romantically situated amid the East Carpathians, 2,000 ft. above the sea; lat. 45° 36′ n., long. 25° 33′ e. It consists of an inner town, surrounded by walls, and of three extensive suburbs. The centre town, which dates from the 13th c., is well and regularly built, and contains some handsome buildings, chief of which is a Gothic Prot. church, built in the 14th c. This part is almost exclusively inhabited by Saxons. The suburbs, surrounded with gardens and orchards, with here and there the hoary ruins of some old castle, or the sloping roofs of some modern villa, rising above the trees, have a pleasant and picturesque appearance. The suburbs are occupied chiefly by Wallachs and Magyars. Linens, cottons, coarse woolens, hosiery, paper, etc., are manufactured here in considerable quantities. C. was the first town in Transylvania where a printing press was established, and the first issues from it were the *Augsburg Confession*, and the works of Luther. Pop. (1880) 29,584; (1890) 30,724; (1900) 36,646.

CRON'STADT: strongly fortified seaport, about 20 m. w. of St. Petersburg, on a narrow calcareous island abt. 5 m. long; at the narrowest part of the Gulf of Finland, over against the mouth of the Neva; lat. (of cathedral) 59° 59′ 46″ n., long. 29° 46′ 38″ e. C. is at once the greatest naval station and the most flourishing commercial port of Russia. It was founded by Peter the Great 1710, the island having been taken from the Swedes by him 1703. Its fortifications, which protect the approach to St. Petersburg, have been an object of great attention to the Russian government. The batteries are very numerous, defending every part of the channel by which vessels can enter. They all are of granite, and armed with the heaviest ordnance. The place, indeed, was considered by the British admiral who reconnoitered it during the Russian war of 1854–5, so impregnable that it would have been madness to make any attempt upon it. C., which is the seat of the Russian Admiralty, has three harbors: the east, intended for vessels of war, and capable of accommodating 30 ships of the line; the middle harbor, where vessels are fitted up and repaired, and which is connected with the former by a broad canal; and the west or Merchant's Harbor, for the merchant-shipping, with capacity for 1,000 vessels; all are admirably defended. Not only the trade of St. Petersburg is conducted through this port, but that of a great part of the interior of Russia, which is connected with it by navigable rivers and canals. C. contains many well-built houses. Pop. (census 1897, with the garrison of about 20,000 men) 59,539; in winter much less.

CROOK, n. *krûk* [Icel. *krókr*, a hook: Dut. *kroke*, a fold, a curl: Dan. *krog;* Gael. *crocan*, a hook]: anything bent; a curve; a shepherd's staff curved at the end: in *OE.*, a gibbet: in *musical instruments*, such as the French-horn or trumpet, a circular tube, which fits into the end of the instrument next the mouthpiece, for the purpose of making

the pitch of the instrument suit the key of the music; the notes of the parts for these instruments being always written in the natural key of C, with the name of the key of the piece marked in letters. SHEPHERD'S CROOK: see PASTORAL STAFF. CROOK, v. to bend; to curve; to turn from a straight line. CROOK'ING, imp. CROOKED, pp. *krûkt:* ADJ. *krûk'ĕd,* bent; curved; awry; winding; perverse; deceitful; without rectitude. CROOK'EDLY, ad. *-ĕd-lĭ.* CROOK'EDNESS, n. state of being crooked; a winding or bending. CROOK-BACK, a hunchback.

CROOK, GEORGE: 1828, Sep. 8—1890, Mar. 21; b. near Dayton, O.: soldier. He graduated at the U. S. Milit. Acad. 1852; entered the 4th U. S. inf.; served in Cal. 1852–61; and accompanied the Red River expedition 1856, and commanded the Pitt River expedition 1857. At the beginning of the civil war he was commissioned col. 36th Ohio vols.; commanded the 3d provisional brigade in W. Va. 1862, May—Aug.; was in the n. Va. and Md. campaigns Aug. and Sep.; and was brevetted lieut. col. U. S. A. for services at Antietam. In 1863 he held important commands in Tenn., and was engaged at Tullahoma, Hoover's Gap, Chickamauga, and in the pursuit of Wheeler's Confederate cav.; 1864 made numerous raids in n. Va., and was conspicuous in Sheridan's Shenandoah campaign; 1865 brevetted brig.gen. and maj.gen. U. S. A., commanded the cav. of the Army of the Potomac Mar. and Apr., and was present at Dinwiddie Court House, Jettersville, Sailor's Creek, Farmville, and the surrender at Appomattox; and 1865 Sep.—1866, Jan., commanded at Wilmington, N. C. He was commissioned lieut.col. 23d U. S. inf. on the reorganization of the army 1866; was engaged in Indian campaigns in Ida. till 1872; commanded the Ariz. dist., and suppressed several Indian disturbances 1872–5; commanded the dept. of the Platte, and defeated the Sioux and Cheyenne Indians at Powder River, Tongue River, Rosebud River, and Slim Buttes 1875–82; resumed command of Ariz., and encouraged the Apache Indians to engage in agriculture 1882; captured the Chiricahua raiders on the n. Mexican boundary 1883; and had general charge of the Indians 1883–86. In 1873 he was promoted brig.-gen. U. S. A., and 1888, Apr. 6, succeeded Gen. Terry as maj.gen., and was placed in command of the div. of the Missouri, with headquarters at Chicago, where he died.

CROOKED ISLAND: one of the Bahamas; area 160 sq. m.; s.e. of Long Island, of which the n.w. extremity forms nearly the middle point of the chain. In common with some others of the group, it is valuable chiefly for its salt. In the exportation of this article, Crooked Island appears to stand third in order, its share counting about 12,000 bushels annually. The Bahama salines are more important from the fact that, for the curing of fish, salt obtained by solar evaporation is preferred to that procured from mines. Pop. 630.

CROOKER, JOSEPH HENRY, American Unitarian clergyman: b. Foxcroft, Maine, 1850, Dec. 8. He was

graduated at Ypsilanti (Mich.) Union Seminary in 1870, and was a Baptist pastor for five years, when he entered the Unitarian ministry. He has been very successful as a pastor at Madison, Wis., 1881–91; Helena, Mont., 1891–7; and Ann Arbor, Mich., 1897. Among his publications are: *Jesus Brought Back* (1889); *Different New Testament Views of Jesus* (1890); *The New Bible and Its New Uses* (1893); *Growth of Christianity* (1897); *Plea for Sincerity* (1898); *Problems in American Society* (1899); *The Supremacy of Kindness* (1899); *The Menace to America* (1900).

CROOKES, Sir William, English electrician and chemist: b. London 1832. In 1854 he became superintendent of the Meteorological Section of the Radcliffe Observatory, Oxford, and in the following year was chosen professor of chemistry at the Chester Training College. In 1863 the Royal Society elected him a Fellow, and since then many scientific bodies have conferred distinctions on him. He was knighted in 1897, and presided over the 1898 meeting of the British Association at Bristol. Prof. Crookes has made his name famous by his important researches and inventions in connection with molecular physics, radiant matter, and high vacua. One of his earliest works was *Select Methods of Chemical Analysis* (1871). His later ones consist mainly of practical manuals, or of translations and adaptations. Among the former are *Manufacture of Beetroot Sugar in England* (1870); *Handbook of Dyeing and Calico-Printing* (1874); and *Dyeing and Tissue-Printing* (1882). The latter include Kerl's *Metallurgy;* Wagner's *Chemical Technology;* Auerbach's *Anthracen and Its Derivatives;* and Ville's *Artificial Manures.* He is an authority on sanitation, and in this connection has written pamphlets entitled *A Solution of the Sewage Question* and *The Profitable Disposal of Sewage.* In 1874 he published his *Researches in Modern Spiritualism,* and in the following year *Psychic Force and Modern Spiritualism,* the latter being a reply to those critics who had attacked the defense of spiritualistic beliefs contained in the earlier work.

CROOK-NECK, n.: a variety of summer squash, named from its recurved neck.

CROOKS, George Richard, d.d., ll.d.: clergyman and author: b. Philadelphia, 1822, Feb. 3; d. 1897. He graduated at Dickinson College 1840; was ordained to the Meth. Episc. ministry 1841; teacher and adjunct prof. of Latin and Greek in Dickinson College 1841–8; held charges in Philadelphia, Wilmington, New York, and Brooklyn 1848–80; edited *The Methodist* 1860–75, and from 1880 was prof. of church history in Drew Theol. Seminary. In conjunction with Dr. McClintock he published *The First Book in Latin* (1846); with Prof. Schem, *Latin-English School Lexicon* (1858–82); with Dr. Hurst, an adaptation of Hagenbach's *Theological Encyclopedia and Methodology* (1884); and individually an ed. of *Butler's Analogy* (1852); *Life and Letters of the Rev. Dr. John*

McClintock (1876); and *Sermons of Bishop Matthews Simpson* (1885).

CROOKSTON, Minn., city and county-seat of Polk County, on Red Lake River, and on the Great Northern and Northern Pacific railroads, 300 miles northwest of Saint Paul. Crookston was first settled in 1877 by Col. Crooks, became a borough in 1880, and a city in 1882. It is a commercial centre of a fertile agricultural region, and carries on a large business in lumber, wheat and live stock. It has four banks, with a combined capital of $225,000, and an annual business of $10,000,000. The city has a fine court-house and municipal buildings, two Roman Catholic and 12 Protestant churches, a fine High School, two large business colleges, a gymnasium, and a public library. The city government is administered under a character which provides for a mayor and a council of 11 members, elected annually. Pop. (1910) 7,559.

CROP, n. *krŏp* [AS. *crop*, top, craw of a bird: Gael. *crap* or *cnap*, a knob, a little hill: W. *cropa*, the crop or craw of a bird: Icel. *kroppr*, a bump on the body: OF. *crope*, the top or protuberance of a hill: Dut. *krop*, the knob of the throat: Ger. *kropf*, the craw of a bird—*lit.*, the head, top, or prominent part of a thing]: craw of a bird; first stomach into which a bird's food descends; anything gathered into a heap; the gathered harvest; corn or other vegetable products while growing, or after being gathered; hair cut close: V. to cut or pluck the ends or tops off; to mow or reap; to sow or plant. CROP'PING, imp.: N. the act of cutting off; the raising of crops. CROPPED, pp. a. *krŏpt*, plucked; cut short; eaten off. NECK AND CROP, altogether; at once; bag and baggage. To CROP OUT, in *geol.*, to come to the surface, as the edge of any inclined stratum, which is called the *crop* or *outcrop:* the line of outcrop of a bed along a level surface is called its *strike.* CROP'FUL, n. *-fûl*, a full crop or belly. CROP'PER, n. *-pĕr*, a pigeon with a large crop; one who grows crops on shares; a fall headlong, as from a horse. CROPSICK, sick from excess in eating or drinking. CROP-EAR, an animal having its ears cropped.

CROPSEY, *krŏp'sĭ*, JASPER FRANCIS: painter: b. Rossville, N. Y., 1823, Feb. 18; d. Hastings, N. Y., 1900, June 22. He first studied architecture, then landscape painting with Edward Maury; made a tour of England, France, Italy, and Switzerland 1847; had a studio in London and exhibited in the Royal Acad. 1855–63; was established in New York 1863–85. He was elected a member of the National Acad. of Design 1851, and exhibited at the International Exhibition at London 1862. His paintings include *Jedburgh Abbey; Pontine Marshes* (1847); *Backwoods of America* (1857); *Richmond Hill* (1862); *Greenwood Lake* (1870); *Lake Nemi in Italy* (1879); *Old Church at Arreton* (1880); *Ramapo Valley* (1881); *Autumn on the Hudson* (1882); *Wawayanda Valley* (1883); *Springtime in England* (1884); *October in Ramapo Valley* (1885); *Autumn on Lake George* and *A Showery Day* (1886).

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